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Thursday, June 17, 1982 Number 813 30p

ICL to release its first Mitel product in July

by Donald Kennett

THE first product ICL will market under its agreement with Canadian telecommunications manufacturer Mitel will be released in the UK next month. It is a digital telephone exchange which features an Ethernet local area network interface and separate switching for voice and data.

First deliveries of the SX-2000 exchange are due in the first quarter of next year both in the UK and North America. Chris Elmer, UK managing director of Mitel, emphasises that it was designed for world markets.

The SX-2000 will also be supplied by British Telecom and Norton Telecom, a UK company which has specialised in telephone exchanges.

Mitel itself intends to stick to manufacturing the system, with plans to open a factory in the UK in 1984 or 1985.

Mitel has earned a reputation for the compactness and efficiency of its earlier analogue electronic telephone exchanges. It caused a row two years ago when it became the first company outside the UK telecommunications industry to supply small PABXs to British Telecom.

The SX-2000 is Mitel's first



IMLAY... Talking to DEC about extending the deal.

Peachtree-DEC pact could extend to US

by Boris Sedacca

A LOCAL agreement has been signed between the UK subsidiaries of microcomputer software house Peachtree and Digital Equipment. It could pave the way for a bigger US deal between the two companies.

"We are presently talking to DEC about extending the deal to the US but we have not secured a contract yet," said John Imlay, chairman of Management Science America, the US software house which last year acquired Peachtree.

The UK agreement will put Peachtree application software on DEC's CP/M based microcomputer products - the add-on processor option to the VT100 terminal, the Rainbow 100 at the bottom-end of DEC's newly launched personal computer range, and the DECmate II from the same range running under the CP/M option.

Software for the flagship product in the range, the PDP-11-based Professional Series, will follow towards the end of the year.

The Rainbow is a dual-processor microcomputer running the de facto industry standard operating system for micros, CP/M.

Peachtree's claim to fame is a software deal signed with IBM for the Personal Computer, also an industry standard CP/M machine. Both the DEC Rainbow and IBM's Personal Computer run CP/M 86, a modified version of CP/M adapted to run on the 16-bit Intel 8088 microprocessor used on both machines.

Overseas labour saves British software firm half development costs

by Claire Gooding

A UK software company is claiming that it can halve software development costs by using cheap overseas talent.

Delta Conversions is cutting its development costs by employing teams of highly-qualified programmers in India where salaries are roughly a third of those earned by similarly skilled programmers in the UK.

Delta also has staff in Abu Dhabi and Hong-Kong, although the bulk of the work is done in India. Software is written by the Delta staff in India and then sent back to the UK for the final phase of development.

This can often involve converting the software from one hardware environment or language dialect into the final target environment - hence the "Conversions" part of the company's title.

Although the conversion phase is an overhead, Delta Conversions has developed particular skills in migration and translation of applications, and is still able to deliver entire projects at 50% of the UK costs, according to UK sales manager Barry Patman.

"The strength of the market there is the quality of the staff and the work they produce. Like people who work for us at level graduates."

To critics who accuse Delta Conversions of exploiting cheap labour, Patman points out that the salaries paid by Delta are above par for India, and that savings are passed on to the customer.

Other companies such as the roughs and Systime have been using Indian labour for years, but Delta Conversions believes their way of operating is unique, as just because of the migration but because they are close and data maintained by sending UK staff to India for systems analysis, bringing Indian staff to the UK for the final development phase.

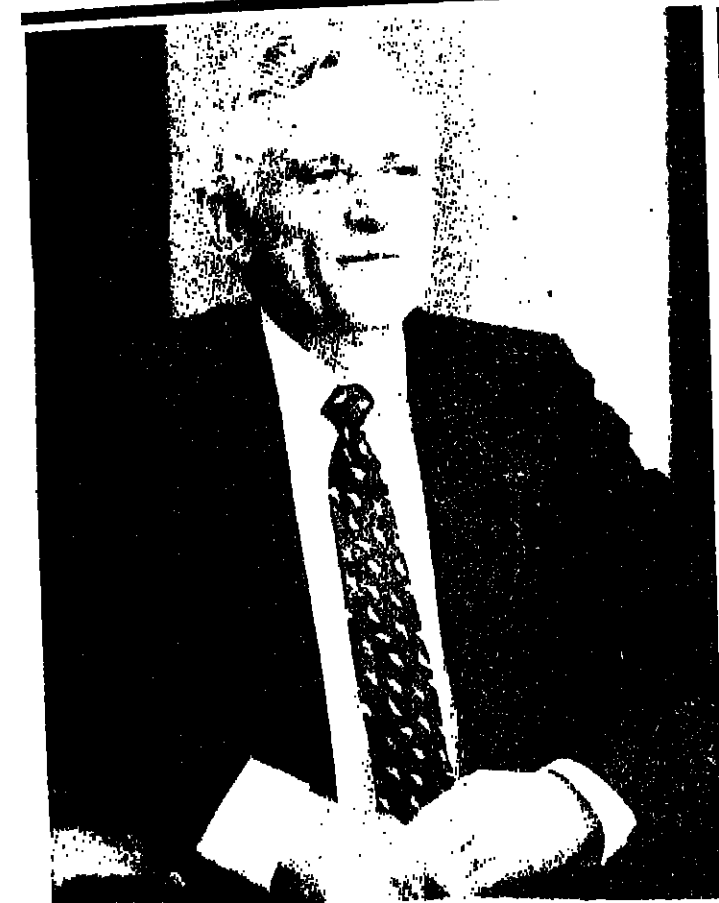
'Patriotic' bar on IBM

by Andrew Thomas

THE US attitude to the Falklands crisis has led IBM to win a deal worth almost £16 million. The Severn Trent Water Authority has tendered from IBM, ICL, Honeywell and Univac for replacement hardware worth £15.9 million, and IBM claims that the selection criteria were "substantially" changed after the tenders were submitted.

IBM was the first choice of the authority's technical committee, but at the authority's annual meeting chairman Sir William Dugdale said the US stance on the Falklands was "inadequate" and a IBM was a "wholly-owned subsidiary of an American company, the deal should not be awarded to them."

IBM claims that the authority went against its own rules by overruling the technical recommendations, and is seeking a High Court injunction to stop the ICL contract being signed. Under a "considering its position" and also take legal action, and ICL is contemplating taking action to protect its interests.



AMDAHL... "All phases on schedule or better".

Trilogy signs super deal with Japan

by Kevin Cahill

TRILOGY CORP, which is not due to ship the first of its new supercomputers until late 1983, has signed a major marketing agreement with one of Japan's biggest trading companies, Sumitomo, to market the Trilogy range in Japan and the Far East.

And the company is already talking to its first US and European customers, although no orders have been signed yet. The 50 million instructions per second computer is to be manufactured in Ireland.

Gene Am Dahl, founder of Trilogy and a founding director of the Am Dahl Corporation, told a meeting of the investors who have put up a total of \$160 million for the new company, that all phases of the project were on schedule or better.

The company's semiconductor facility, which was earlier delayed by 60 days due to heavy Californian rains, is now back on schedule, according to Am Dahl.

Much of the advanced design testing and logic simulation for the Trilogy machine is now complete. Am Dahl said the final Trilogy product would not be a single device but a range of machines, all fully IBM-compatible.

He said that although links with customers had already been established, his company would not be appointing marketing staff until later next year.

The company would be starting manufacture of the first of its machines in July 1983 with Irish engineers from the Trilogy plant in Dublin joining the prototype manufacturing in California.

Although Am Dahl's chances of producing his machines on time and to specification are well rated inside his old company Am Dahl, other commentators in Silicon Valley are not so sure.

Several Japanese companies, notably Hitachi and Fujitsu, have put the cost of launching a brand new IBM compatible mainframe like the Trilogy machine at \$300 million. This is twice the sum raised so far by Trilogy.

Add-on snags hit IBM 3081 shipments

by Kevin Pearson

DELIVERIES of IBM's top performance computer systems are being severely depressed both by the lack of peripherals to drive the systems at their potential and IBM's announcement of a cheaper mid-range alternative.

Many users in Europe and the US have been unwilling to take early deliveries of IBM's 3081s. They are taking deferrals instead, and sometimes switching to the mid-range 3083, announced in April, according to industry sources.

The launch of the 3083 drove prices of used 3081s down sharply. The 3083 is directly comparable in performance terms, making it difficult for some users to justify taking delivery of the much larger 3081s.

According to Ulric Well, an analyst with Morgan Stanley in New York, prices of the 3083 have dropped from 60% of IBM's list prices to under 35% since the launch of the 3083.

Users have had to accept large book losses on the upgrade, or defer taking the larger systems while the recession lasts.

The position has been repeated in Europe, though prices of used 3083s have not fallen so badly. Logan White, a director of Mega-Leasing says that European prices could fall to similar levels as those in the US by the end of the year.

But Parry Mitchell, chairman of United Leasing, and John Fuller, a director at PCML, do not expect prices to drop that sharply.

All agree that the 3081 order position in Europe is "very soft". They attribute this to the launch of a cheaper alternative in the top model of the 3083 series, and to the lack of system peripherals, notably the high performance 3380 disc drives and a high performance tape system, to drive the 3081 at its true potential.

Without these peripherals, says White, users could find themselves paying a lot of money up front when they replace a 3033 with a 3081D, but be unable to get any increase in system performance. This combined with the launch of the 3083, he says, has led many users to change their upgrade plans in favour of the 3083.

According to White, there are already three second user 3081s available in Europe for delivery early in 1983, at prices "well below" IBM's list price.

The slackening off in orders has led many US analysts to predict a sharp drop in IBM's share price. In one case a drop is predicted from the present \$58 a share to \$44 on the strength of a potential decline in turnover which the order position could precipitate.

The news also had a bad impact on Am Dahl's shares. They fell from around \$25 to just over \$18. Am Dahl's 58/60, which is even more powerful than IBM's 3081, is due for first deliveries in August.

Unions to accept ICL pay offer

by Andrew Thomas

ICL workers are likely to accept the latest pay offer from the company. Union leaders met ICL management on Monday in Birmingham, and it is expected that union members will be advised to accept the offer when it is put to the vote later this month.

An original 5% across-the-board rise was rejected by the workforce, who considered that the lowest-paid would suffer undue hardship. ICL has now put together a slightly modified package in which employees earning less than the median salary of £4,680 would receive an extra £4.50 a week.

Union sources within the company feel that the offer will be accepted on condition that further negotiations take place next January, after the company's full year results are known.

US software piracy suit

by Maggie McLenning

US software house ABC Management Systems is suing the International McCormack & Dodge Corp for alleged piracy of one of its software packages.

AMS claims that M&D broke a licensing arrangement to sell its ABC System, a modelling tool, solely within the US. AMS says M&D copied the software and sold it in Europe as the Fast report writer within M&D's G/L Plus general ledger system.

M&D admits that Fast was derived from the ABC system, but says that the software is now changed so fundamentally that the original licensing agreement no longer applies. This means that the legal action could hinge on expert testimony as to similarity.



The first Am Dahl 58/60 ready for shipment from the Sunnyvale plant.

Lundy pull-out at Giro

by Kevin Cahill

THERE is peace again at the National Giro Bank data processing centre in Boodle, following the amicable departure last week of Lundy Farrington, one of the centre's maintenance contractors. Earlier this year withdrawal of cover by the Lundy engineers led to a total machine stoppage in the Giro centre, which processes over 6,000,000 cheques and other documents each day, mostly on Farrington equipment.

Engineers had withdrawn cover after a new maintenance contract was awarded to DPCE, independent contractors based in Wokingham. The Farrington management had resisted DPCE's use of what Farrington termed "proprietary information" in order to establish DPCE's position on the Boodle site.

A spokesman for Farrington said that the parting was friendly, and that Giro had made suitable financial arrangements.

He refused to comment on the fact that Farrington were not originally due to leave the site until September. He added that the Farrington engineers were now deployed elsewhere.

£1.25m Tandem deal

by Andrew Thomas

THE Bank of England has decided on Tandem equipment for the prestigious Book Entry Transfer (BET) system to be set up in conjunction with the London Stock Exchange.

The £1.25 million deal for Tandem's Non-Stop 2 hardware was won against fierce competition from IBM and DEC. It follows close on the heels of Tandem's award of the multi-million pound Chaps (Clearing House Automatic Payment System) involving the supply of hardware to the major clearing banks.

BET will have 275 users in its initial stages and will provide a mechanism for the transfer of gilt stocks without the cumbersome and time-consuming method of using written certificates a procedure causing increasing problems with greater activity on the gilt market. Operational costs will be in the region of £1 million a year.

"This is a prestigious contract of importance to the smooth running of the gilt-edged market," says London area manager Allen Brain. "We are proud to be an important participant."

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ICL chairman knighted

by Kevin Pearson

INDUSTRY figures picked up seven awards in the Queen's Birthday Honours list, including two knighthoods.

One of the knightships goes to Christopher Laidlaw, chairman of ICL and former deputy chairman of British Petroleum. It is the second piece of good news for Laidlaw in recent weeks: last week it was announced that ICL is on course for a return to profitability in 1982. It is already trading profitably if the prodigious interest charges it currently pays are ignored.

The other knightship was awarded to John Hoskyns, founder of the Hoskyns software group who, until April, headed the Prime Minister's policy unit. Hoskyns is returning to private industry.

There are two CBEs, one for Douglas Morrell, deputy managing director of Racal Electronics, and one for Professor Robert Churchhouse, a computer science lecturer.

The industry also gets two MBEs: one to the managing director of Compugraphics International, Graham Bowen, and the other to Geoff Glossop, chief executive of Mideltron, the Belper-based peripherals and systems company. Glossop founded Mideltron eight years ago and has guided it to its present multi-million pound turnover.

Margaret Wood, a member of the Glenrothes Development Agency, which has been successful at attracting high technology investment to the area was awarded an OBE.

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Links to remote sites for Zynar network

by Donald Kennett
COMMUNICATIONS links to remote sites and to mainframes are two of the planned series of enhancements to Zynar's Cluster One local area network.

The company believes the new features will help to quadruple sales this year of the network for Apple microcomputers.

The enhancements will be introduced through a variety of deals with other companies, as well as Zynar's own developments and those of its sister company Nestar.

Zynar was set up in the UK early in 1980 to distribute Nestar's networking products. Last year it converted its initial minority shareholding in California-based Nestar into a majority one. The two now operate as a joint international company.

The first remote communications product, the £1,000 FTS file

transfer server, is designed to transfer files of any size automatically at pre-set times or regular intervals to another FTS on a remote Cluster One network, or on request directly to or from a user station.

The hardware is based on the Owlview data interface from Owl Computers.

Another communications device is the buffered communication card, which has its own 6502 processor with up to 8 Kbytes of ROM control programme and up to 8 Kbytes of RAM.

Mainframe links will be supported by servers to emulate IBM's 3780 and 3270 terminal protocols later this year.

The company wants its customers to be able to integrate local network and mainframe facilities, but it also believes that adding communications to personal com-



CROOK... Zynar plans for "professional leisure network operators"

Machine tool industry 'undermined' fear

by Donald Kennett
MIXED reactions greeted last week's announcement of £60 million worth of support for flexible manufacturing systems. The Department of Industry, which is designed to encourage the application of computer control to batch production processes, has aroused fears that the UK machine tool industry could be undermined by subsidised imports.

But Information Technology Minister Kenneth Baker said: "We will do everything we can to promote British machine tools and equipment and it is very encouraging that a growing proportion of robots is being produced in the UK."

Scepticism about the ambiguities involved in requiring applica-



ADAMS... "Intention to be selective"

'Low investment in micros' protest

THE East Midlands has the lowest investment in installation of micro-electronic equipment in the country, according to John Farr, Tory MP for Harborough.

In the Commons he called on the Prime Minister to take a major initiative through the Departments of Industry and Education and Science, the Manpower Services Commission and the Microprocessor Application Programme to change the situation.

Mrs Thatcher pointed out that the government had announced substantial programmes to encourage new technology.

US chain plans 40 UK stores

by Boris Secacca
THE giant US micro retailer Computerland chain is set to make a push into the UK market. It has bought the name Computerland from Comart and plans to open up its first two stores in London towards the end of the year.

The US company hopes to open 40 stores in the UK over the next five years. Comart bought the Byte Shop, which had rights to the Computerland name when it folded years ago. Comart will retain the Byte Shop name for its retail operations.

According to James Minotto, president of Computerland Europe, his company will also take over Comart's legal action against Microcomputerland, the troubled self-appointed distributor for the IBM Personal Computer, which has now stopped trading.

Reservations can now be confirmed on Prestel

by Donald Kennett
PRESTEL has teamed up with travel industry communications specialists Videcom to overcome one of the long-bemoaned shortcomings of its bookings systems - that reservations could not be confirmed at the time of placing.

Building on Prestel's recently opened Gateway, which enables information providers to set up direct links between their computers and Prestel, the two companies are to launch a service called Skytrack which does the airlines' end of the job for them. This could save the airlines up to £100,000 each and accelerate the spread of online access to their systems.

NCC micros for industry package

A MODULAR package of training materials for management, intended to speed up the use of microelectronics in industry, is to be put together by the National Computing Centre.

The package will be designed for use in industry and education and will be ready early next year. Pilot courses will run this autumn. The scheme is backed by the Department of Industry's Microprocessor Application Project.

HP sales up

HEWLETT-PACKARD's second quarter results show a 28% increase in sales and a 34% rise in earnings. Orders received in the three months to April 30 exceeded \$1 billion for the second quarter running, and net earnings were \$94 million, equal to 7% of sales.

Profits slip

PERKIN-ELMER, the UK minicomputer maker, saw this quarter profits slip 27% to \$41.9 million on sales of \$255.5 million, down 11% on the comparable figure of a year ago. For the year date the company reports profit of \$41.9 million, a drop of 24% on last year. Sales in the nine months fell 6% to \$766.9 million. Orders for the nine months slumped 10% to \$7.11 million.

Banks warning

BANKING Information Service has warned that the ending of bank credit vouchers by cheque production on dot matrix printers will not be suitable for the bank's credit clearing system when it is automated at the end of 1983. Character quality will have to comply with OCR-B standards set out by the Inter-Bank Standards Unit.

Robot project

THE Japanese government is to launch a multi-million pound seven-year project to develop high intelligence robots for scientific, economic and social purposes.

Minister calls for more joint ventures with overseas firms

by Kevan Pearson
BRITISH electronics and computer companies need more joint ventures with overseas companies if they are to compete internationally, the Information Technology Minister, Kenneth Baker, told a London conference last week. But Sir Richard Cave, chairman of Thorn-EMI, questioned whether the British government is doing enough to encourage such moves.

Baker said: "None of the British IT companies is large in world terms, and to achieve the economies of scale necessary, British companies must enter more joint ventures and co-operative arrangements with companies abroad in order to do business on an international scale."

"There is no future in the British economy or the world economy by sinking into protectionism. We are a trading country and we need to survive by our capacity to buy and sell internationally."

The Minister was addressing the Financial Times World Electronics Conference.

Cave supported the Minister's call for more joint ventures. In particular he said that in his opinion joint ventures provided "the most acceptable format for major projects of direct investment by Japan in this country."

However, he criticised the government's efforts so far. "The question," he said, "is whether government in this country is doing enough in a positive sense to encourage joint venture solutions, particularly with Japanese companies."

Cave added that the reasons the government should adopt a more positive stance were that while the British market had proved lucrative as an export market for Japanese companies, there had been no reciprocation.

"Despite efforts to open it up, the Japanese market remains closed to the industrial exports of Britain. And no fixed investment is likely to get far in Japan if it is not undertaken in partnership with local Japanese interests."

He added that the government should be obliged to ensure that, when Japanese companies invested in the UK, it should be in the form of joint ventures so that local industry was helped by the investment.

He repeated the National Economic Development Office's call for a strong industrial policy for electronics.

Jean-Claude Hirel, Baker's counterpart in France's Industry Ministry, called for more collaboration between European countries. He said that out of the top 10 electronics and computer manufacturers, five were American, three Japanese and only two from Europe.

He added that unless European countries took a united stand, their information technology efforts could fail. Such a move, he said, would require a strong commitment from both industry and government.



BAKER... British companies must enter more joint ventures with foreign firms to compete internationally.

Hardware investment pays off

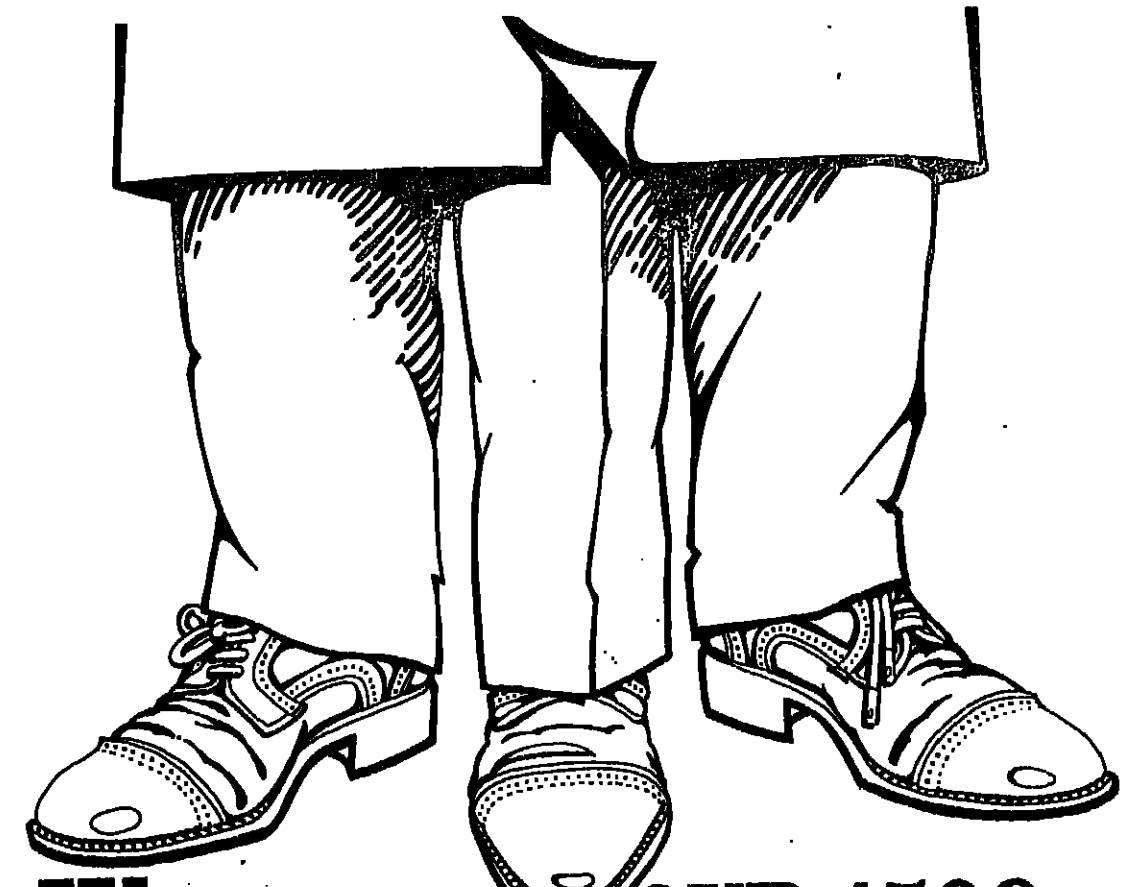
by Maggie McLeneg
INVESTMENT of £1 million in hardware by Computer Management Group so that it could attack the lower-end IBM market appears to have paid off. In four months it has taken orders worth £750,000 for System 38 software, and £320,000 for System 34 development work.

"We have always been confident that our investment would pay, from discussions and work that we had done on IBM equipment before," said Chris Harrison, a director of CMG (UK). "System 38 was seen as a major area into which we could expand."

The orders have come from companies based in the UK and in Holland, and include software assistance to IBM UK for applications software conversion.

Conversion was cited as one of the major problem areas for new System 38 users by a recent Xephon user survey.

CMG became an IBM approved software supplier at the end of last year, under IBM's third party software scheme. CMG is now installing an £80,000 System 38 in its UK head office.



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BURY... Looking for a 16-bit replacement.

ACT beats slump with profits up 33%

by Kevan Pearson
BIRMINGHAM based bureau and micro house Applied Computer Techniques had a bumper year in 1981 despite the recession afflicting the West Midlands, where in some areas unemployment has reached 17%.

ACT's pre-tax profits rose by 33.6% to just over £1 million, compared with the previous year. Sales were almost £3.4 million, a rise of 17%.

The company is making a one for eight rights issue to finance additional growth, particularly the development of software for the 16-bit Sirius I, for which ACT is sole UK distributor. The company has so far shipped or has orders for 2,000 Sirius machines.

There is one extraordinary item in the accounts. Almost £200,000 has been written off for the liquidation of its investment in Compu-Think, the company set up to make the Series 800. ACT will continue to sell the machine, and 500 units have been sold so far, but it is looking for a 16-bit replacement.

ACT is talking to Convergent Technologies of California, which makes the Intel 8088/8086-based machine which forms the basis of Burroughs' B20 small business system. Negotiations are continuing, according to ACT's chairman, Lindsay Bury, though Convergent's price is too high, he adds.

Series 800 is marketed as a complete small business system, with

networking facilities, so ACT is looking for a proven product to replace it in the burgeoning 16-bit market.

It has Sirius, which is 8088-based like the Convergent Technologies' machine, and Bury admits that Sirius could form the basis of a Series 800 replacement. But at the moment neither the software nor the networking facilities exist in a fully developed form.

And ACT's plans for the Sirius appear to be separate from its small business system activities. It has set up a subsidiary to handle the machine.

The company is not selling Sirius direct to the public at the moment, though it probably will in the longer term.

Intel to launch French components venture

by Jack Gee
INTEL is to launch an ambitious programme to manufacture advanced computer components in France. Production will be handled by Cimatel, Intel's joint venture with Matra and Harris.

Intel announced in Paris that it is in the process of defining with its partners a range of up to five components. The final choice will be made in 1983 and production will start shortly afterwards.

Barry Cox, Intel's European chief, said: "The key issue for us is to obtain from the new French government the right to sell our products freely to the data processing and telecommunications industries here."

Cox emphasised the experience of Matra in advanced technology. He contrasted it with that of re-

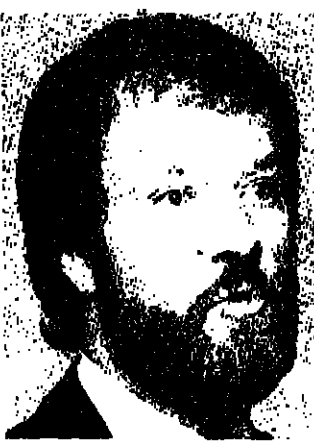
cently nationalised Saint Gobain, with which Intel's negotiations for a co-operative arrangement filed before the Socialist administration took over in France a year ago.

Cox expressed confidence in Intel's 64K circuit and claimed that its high density memory was vastly superior to competitors.

He added: "We delivered 10 million of them last year and plan 60 million for this year and 200 million in 1983."

"Even if we were not the first in the field, we are well placed in this fast developing market which is only just beginning to take off."

Cox added: "We are not surrendering to the Japanese. They will remain our competitors. But we can co-exist. Our strategy is to improve our technology, innovate at a faster speed and to excel where



COX... No surrender to Japanese.

the adversary is weak - that means in the variety of our products.

"While the Japanese concentrate on memories, we claim leadership in many other areas, notably in microcomputers, where there is no serious Japanese competition."

SPL move to establish a US market

by Sarah Hardcastle
IN a move to establish a market in the US, SPL International, the London systems and software house, has signed up Intelligent Industrial Systems Inc of Secaucus, New Jersey as its American agent.

As a first step, IIS will distribute two of SPL's most successful products, the RTL/2 high-level language and the Magic microcomputer software development package.

Announcing the development, Jim Fisher, managing director of SPL's research division said: "Our first target in the US will be the OEMs in the real time control systems market, designing controllers for industrial applications."

"The new generation control systems, employing 16- and 32-bit

micros, call for a more flexible and cost-effective approach to software design. This is not being met by the fixed packages of Honeywell and Foxborough, the traditional suppliers of this market."

Confident of finding a large market for RTL/2, Fisher added: "The majority of US companies use Fortran and assembler for their real time projects. They are the kind of OEMs likely to turn to RTL/2 because of its security, simplicity and portability."

IIS, a computer consultancy and subsidiary of the \$300 million NPS Corporation, was chosen, said Fisher, because the company has good control systems experience and is familiar with what is a classic RTL/2 market. Other SPL products would probably be distributed by IIS.

to pull itself back into the match.

And so to the darts. Secretaries Jean Goodman and Maureen Fraser starred on the Computer Weekly side while the accuracy of Trident's Neil E. Smith threatened to allow Trident to take home its own prizes.

In the end the unsteady hand but cool head of Computer Weekly classified advertisement manager Brian Durrant slotted home the crucial double to square the match.

An honourable draw to a more-or-less honourable competition.

This (sort of) sporting life...

It was provided by Trident's larger-than-life chairman John O'Sullivan, an old hand at the recruitment consultancy business.

The competition saw up to 25 people involved on each side and was spread over nine events. It kicked off with mixed sexes five-a-side football in which a friendly knock-around quickly became a serious match, but ended with laurels shared at 4-4.

Likewise the squash, in which Computer Weekly's youthful telegenic manager Shobhan Gajjar was outpaced by the older but fitter Mike Bull, managing director of Trident, before Trident's Keith Taylor went down to Julian Bidlake in a tough match to leave the points all square.

From then on, dear reader, your reporter has to say that things went downhill. Gentle parlour

games of dominoes and backgammon became displays of outrageous chauvinism on each side as the night's scorer, Peter Jezeph of Trident, attempted to ensure that justice was done.

With losses piling up against the home side it is with some reluctance that journalistic integrity also requires your reporter to record that Computer Weekly needed the beer drinking competi-

SALES BRIEF

BNOC opts for Gould 32-bit minis

BRITISH National Oil Corporation has ordered two SEL 32/87 32-bit four million instructions per second minis through oil industry house Seiscom Delta Design.

The systems, which use 300-Mbyte disc drives and tape drives, will run Seiscom's seismic geophysical software modelling, interpretation, base management and graphics work.

Similar work is already done by BNOC's five-year-old SEL 32/87 minis.

Treasury link

SCICON Computer Services won a contract to supply data communications equipment to Central Statistical Office's Treasury to link 80 terminals to the Univac 1100/62 mainframe they share. The company supply a Micromicro 80 selector and a CHI Corp. processor which is capable of linking the terminals in a cluster to several different computers.

Oil agreement

ABERDEEN-BASED oil bureau and consultancy Computer Services has won a £200,000 Data General 32-bit mini and signed an agreement under which it will supply Data General hardware and software.

Cifer for BT

BRITISH TELECOM ordered £500,000 worth of Systems 2683 280-based VDU's for the preparation of international telegrams and teletypes at its eight teletype offices.

£5m orders

HAWKER Siddley's industrial automation subsidiary W. Systems has won four orders worth a total of £5.4 million, computer-based control systems for the South of Scotland Electricity Board's £3 million work control project; two for the New Zealand Ministry of Energy and Brunei Shell Petroleum's pipelines from Port of West London, Purfleet to Wick.

Henrietta Foxglove is up for the cup.

On Ascot Gold Cup Day we reveal a little secret. Our Henrietta is really a North-Country lass.

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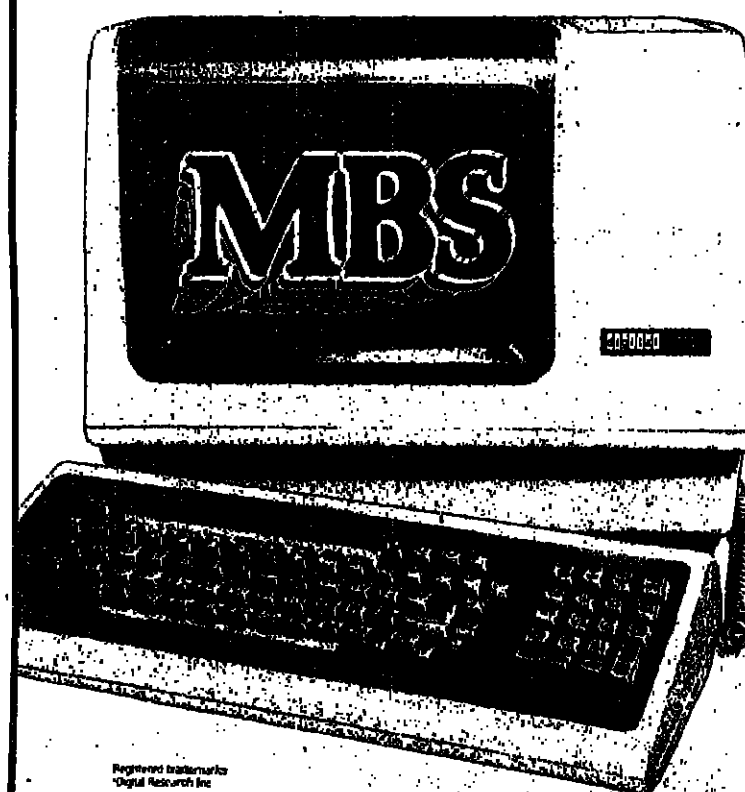
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The VT100 has become the industry's definitive VDU. Now it is available in many variants, with a full range of advanced features, to suit all needs and budgets.

VT100 VDU

A high performance VDU with outstanding ergonomics, super-sharp display, up to 132 characters per line and many features. Upgradeable to VT102 and VT100.

VT101 low cost VDU

A low cost version of the VT100, without its advanced features, but with local echo for use with non digital computers.

VT101 full feature VDU

As VT101, but with local editing, block mode, advanced window features, printer port, full 24 x 132 character capacity.

VT102 graphics VDU

As VT100, but with 768 x 240 x 2 graphics, green screen, printer port, optional advanced video.

VT100 CPM1 computer

A powerful and professional CPM1 personal computer, with twin floppy disk drives, based on Intel 8080 upgradable from the VT100.

PRINTING TERMINALS

Digital Equipment Corporation is the world's leading manufacturer of teleprinters. Now, the new LA range offers more choice than ever before.

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LA34 low cost printer

A 30 cps printing terminal: MSR and RO models. High functionality with very flexible forms handling, dot graphics capability.

LA100 better quality printer

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Authorised Digital Equipment Corporation Distributor

Racal ventures into expert systems market

by Philip Hunter
COMMUNICATIONS company

Racal has set up a new expert systems division. Initially Racal will develop expert systems for the oil industry on a computer manufactured by Symbolics of the US. The Symbolics computer is distributed in the UK by Electronic Associates, the specialist suppliers of computer services for scientific applications. After a cautious start in oil exploration, Racal expects to branch out into other applications for machine intelligence such as medicine. It also expects to develop portable software to run on general purpose machines, including the Digital Equipment VAX.

Racal will supply some general purpose software through licensing, as well as customised programs for specialist applications.

But in both cases the software will be tailored to a particular application, like oil exploration. Expert systems consist of two

components: a database of knowledge and an inference program to draw conclusions from it. Expert systems, a branch of machine intelligence, are largely a UK phenomenon. In the US, more effort has been dedicated to information systems that respond to simple English queries.

The pioneers of expert systems in the UK, Systems Programmers (SPL) and Intelligent Terminals (ITL), have taken a different approach from Racal.

Both these companies developed and now market general purpose expert systems generators which enable the user to build knowledge databases for any applications which need diagnoses from quantifiable information.

The machine that Racal will use, the Symbolics 3600, is dedicated to LISP and other languages developed in the US.

These languages require a lot of central processing power, and benefit from a large dedicated machine.



GAGNARD. . . "We still intend to keep a fairly low profile."

Pansophic widens choice of programming aids for IBM users

by Maggie McLening

AN application development language which widens the choice of programming aids for IBM main-frame users has been introduced by Pansophic.

Called PRO/grammar, the product "bridges the gap between straightforward report generators and powerful programming languages", according to IBM system software specialists Pansophic.

Two main markets are predicted for the product: users of Pansophic's Easytrieve data retrieval package wishing to extend it into a complete application development tool; and Cobol and PL/I users looking for greater speed and efficiency.

Aimed at DP departments and not users, PRO/grammar includes such features as automatic and multiple report formatting, unlimited synchronised file processing, virtual file management, a macro system and debugging aids.

Operating on IBM 360/370, 303X and 4300 machines with on-line execution via TSO, ICCF and CMS, it is unlikely to tread on the toes of its potential main rival User Files Online (UFO), which is mar-

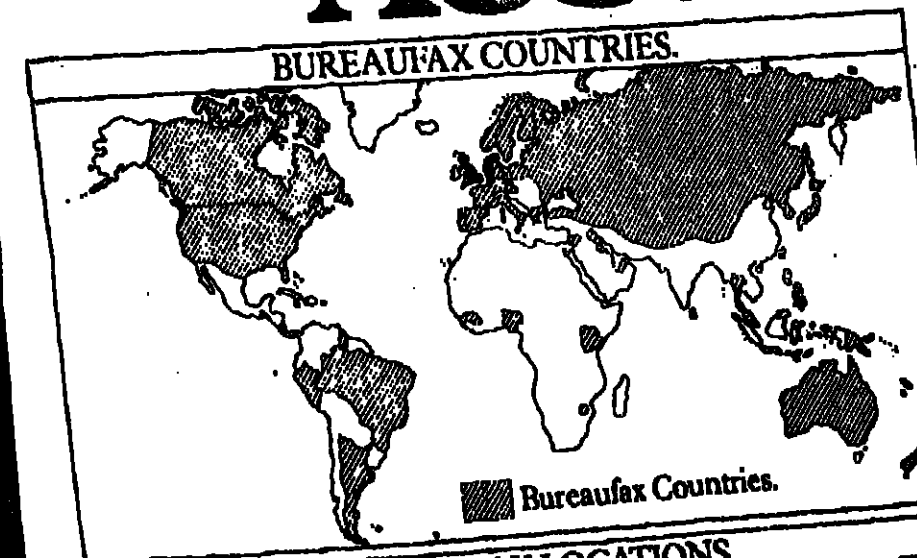
keted in the UK by Fire and Systems Resources and now under CICS. But Pansophic agrees that CICS is a logical future development.

Priced at £8,000 for the DOS version and £10,000 for OS, PRO/grammar is cheaper than UFO, which costs £11,500. But UFO has already established a formidable user base of some 550 installations spread over 20 countries, and its developer, Oxford Software Corporation of the US, recently collected an ICP award for sales worth \$10 million.

The launch of PRO/grammar was timed to coincide with the arrival of Pansophic's new president of European operations, Jim Gagnard, who will be permanently based in the UK. He outlined his plans for Pansophic in Europe.

"We still intend to keep a fairly low profile, while building up a marketing group in Europe," he said. "We're always looking in good agents and have so far appointed six in Greece, Israel, Sweden, Switzerland, Italy and Spain."

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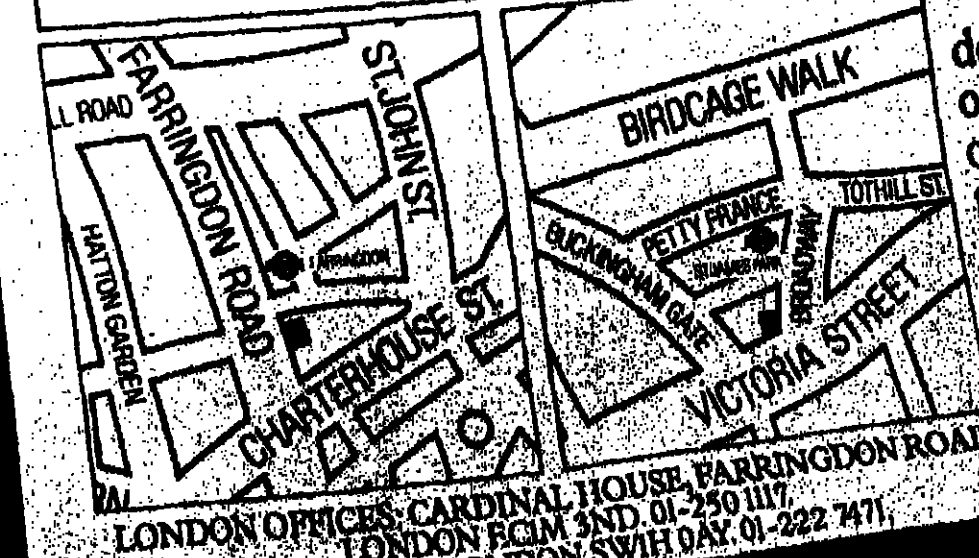
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BUREAUFAX TELECOM International
From British Telecom

Seven more software products for Stratus

by Sarah Hardcastle

SEVEN new system software products for the Stratus fail-safe computer system have been released. They give weight to the challenge Stratus is making in the UK to Tandem's and Computer Technology Ltd's non-stop computing systems.

British Olivetti is the UK agent for the Stratus CPS/32 continuous processing system. "We'll be going for Tandem's marketplace, which has broadened to include commercial applications as well as the traditional customer base of security conscious organisations," says Mike McDonald, British Olivetti's product manager for the CPS/32.

Apart from pricing the CPS/32 at "a little less than a comparable Tandem system", McDonald believes the Stratus system has the edge over Tandem on several counts.

"The fail-safe re-start features are built into the hardware, unlike Tandem's which are held in software and require complex programming. Furthermore, should a component failure occur, it will be identified by the system's self-diagnostics enabling boards to be changed while the system is still running," says McDonald.

The new Stratus software includes: A transaction processing system with integral network support; a forms management system; a 3270 terminal support enabling IBM-compatible terminals to be connected to a CPS/32 and a 3270 emulator facility enabling application programs to access an IBM host.

The remaining products include an X-25 networking facility.



SHERMAN . . . "Rowe's reward."

Sirius link to CPM software

by Robert Parry

A PLUG-IN board has been released which will give the ACT Sirius 1 microcomputer access to application software designed for the widely used CPM operating system.

It comes from Small Systems Engineering, the London company that brought CPM to the eight-bit Commodore Pet with its Softbox.

With the Z80-based board installed in the machine, users can switch easily between CP/M-80, which runs 16-bit programs on the Sirius' own 8088 processor, and CPM-80 for eight-bit software on the added Z80, says Small Systems' managing director, Derek Rowe.

Small Systems Engineering developed the board and will be producing the first production units.

"This country will be Derek Rowe's reward for developing the board," says Ed Sherman, managing director of the computer's UK distributor, ACT (Sirius).

'Big companies not suited to electronic office'

by Kevin Pearson

LARGE companies are not suited to the rapid introduction of office automation, according to a report by London-based research company Euromonitor Publications.

The report claims that large organisations are "too compartmentalised for rapid progress towards the electronic office to be achieved". It also criticises senior managers in large companies for failing to take the lead in the use of

computer equipment in the office. A resistance to the use of large boards comes in for particular criticism.

The report's findings go against the prevailing view that large companies provide the best environment for the introduction of electronic office.

* Euromonitor Publications is a research and consulting firm. Further details from Euromonitor Publications can be obtained by writing to: Euromonitor Publications, 100, The Quadrant, London W1 4PF.



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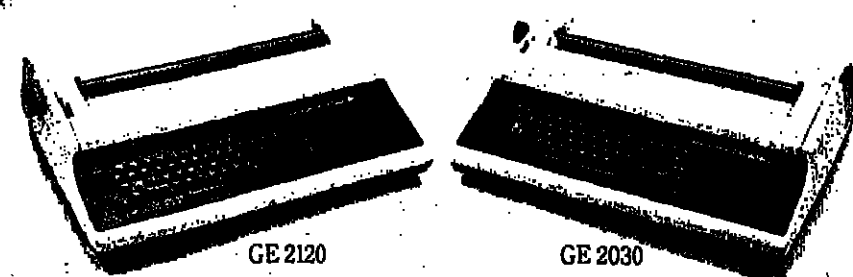
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GENERAL ELECTRIC

Foreign firms' low-key stance at US show

THE best way to describe the National Computer Conference, America's one-time premier computer show, is to say that it was half the size of the Hannover Fair, and four times as noisy.

The NCC attracted 622 exhibitors, more than 90% of whom were American companies. The computer section of the Hannover event captured 1,200 companies. But the number of foreign exhibitors was what most distinguished the European event from the American.

There were 27 Japanese computer companies at Hannover, dominating an entire section of the huge conference halls.

In Houston, only five Japanese computer companies had a presence of any stature.

Panasonic focused its stand at NCC on a series of colour and monochrome visual display units aimed principally at US small system builders. It did not display the 16-bit micro which was such a central feature of its stand at Hannover.

Only one model of the Panasonic hand-held computer was on display, and given the current American interest in hand-held and portable computers, this product attracted the most interest.

Featured with the full 52K extended memory, the machine was shown in the briefcase display incorporating an acoustic coupler, dual colour thermal dot matrix printer and TV connector.

The entry price recommended by Panasonic is \$600, with a full-blown model costing over \$2,000. The pricing contrasts with the Lexicon personal communications computer introduced by the Lexicon Corp of Miami, which costs some \$995 complete with standard telephone connections.

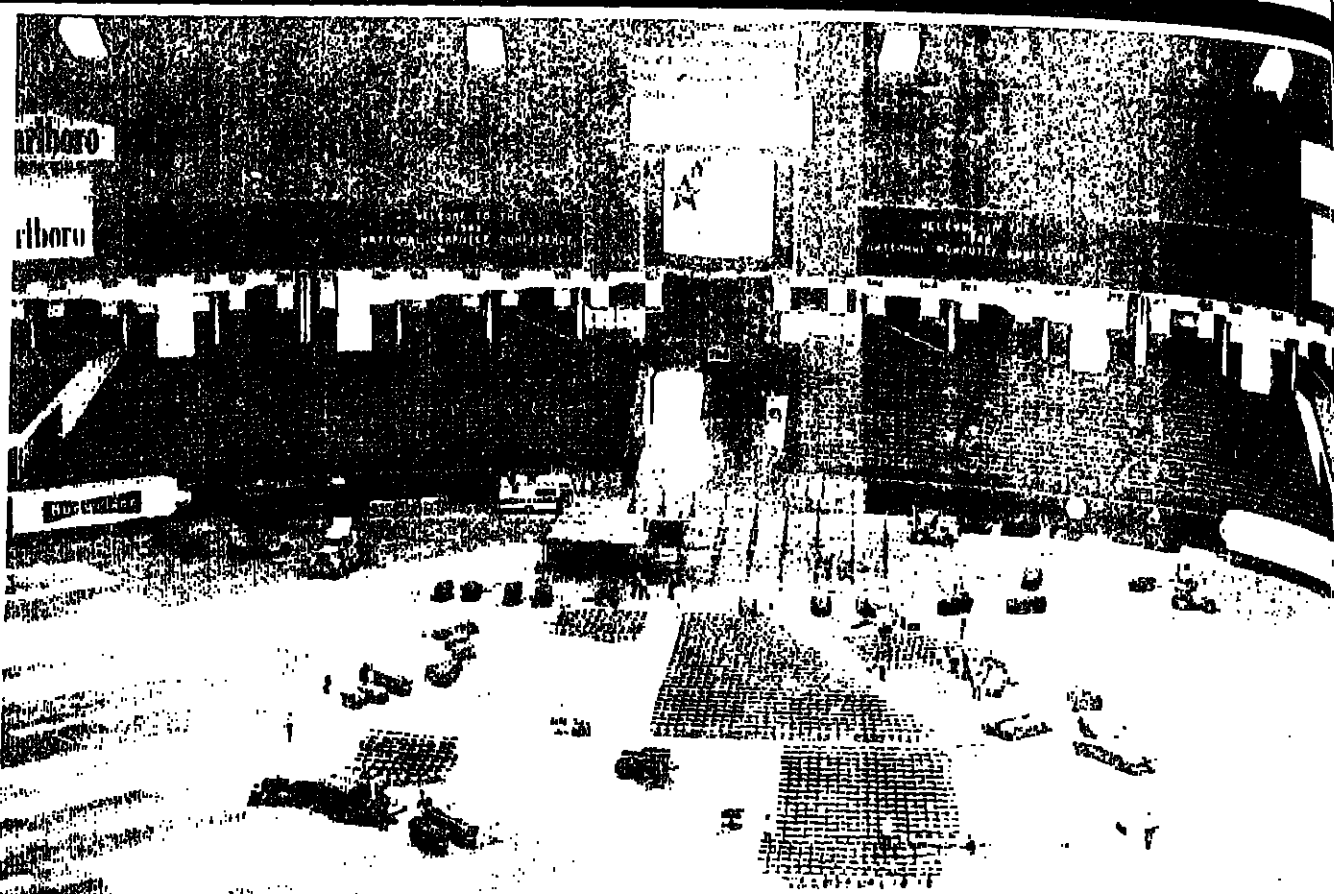
Unlike the Panasonic machine, the Lexicon's acoustic modem came in the form of two separate pieces - one to attach to the end part of a telephone, the other to the mouthpiece, with the modem electronics located in the device itself.

The Lexicon LEX 31 measures 10 1/2 in x 5 1/4 in x 1 3/4 in and weighs less than 2lb.

The importance of portable machines in America is vividly illustrated by the dramatic success of the Osborne 1 briefcase micro. It is expected to make Osborne the first computer company to go from zero to \$100 million turnover in one year.

But the position of the native suppliers is under direct threat by the speed and success of such companies as Panasonic, and one of the principal after-NCC topics in places like Silicon Valley was just why the Japanese had chosen to take such an effectively low-key stance at the NCC in contrast to the aggressive style displayed at Hannover.

Nippon Electric Company, the Japanese firm with the largest established position in the US,



Business as usual in the Astrodome at Houston, Texas. After the NCC comes Stevie Wonder in concert.

showed a range of enhanced versions of the Astra small business system, and a series of American-made graphics packages running on the PC8000 personal computer. The speed at which American software companies have produced packages for the low-cost Japanese hardware now becoming increasingly available in the US, was a significant feature of the Japanese stands.

Staff at the NEC stand attributed NEC's \$100 million revenues in 1981 to a substantial push from the US software industry.

Nearly 100,000 see vast range of new products

"POWER to the end user" was the banner under which most exhibitors at this year's NCC united. Nearly 100,000 visitors came to see the variety of hardware, software and peripheral products gathered under the triangular roof of Houston's Astrodome, which sits next to the huge circular Astrodome, claimed by Texans to be the eighth wonder of the world.

As well as software to help you do-it-yourself, a deluge of graphics and colour-screen tools were launched, along with the inevitable contingent of new micros. There was no lack of new peripherals and discs - including innovative 9 inch discs and 3 1/2 inch floppies - to support expanding user needs.

But it was not easy to extract a common theme from anything as big as NCC. "Confusion" might

be one, with the plethora of micro products jostling one another in a market where the mainframe manufacturers were keeping quiet.

Crowd-pullers were the Grid flat-screen portable terminal, the Business Express database and applications system, and the Digital Equipment Rainbow personal computer.

Interest in operating systems and high-level languages was high, with the accent on ease of use.

But besides the now-familiar messages about easy use and low prices, there were more exciting discussions going on. NCC is a meeting of brainpower as much as marketing. While the products of last year's ideas were being pushed with less gimmicks than expected at such events, a lot of the innovators themselves were looking forward to the next generation.

Natural language and the gradually emerging results of artificial intelligence research were the commonly discussed subjects among conference delegates at the more innovative exhibitors.

But in the realms of the commercially available, debate centred more on down-to-earth subjects like price, and whether the market was as eager to buy all those graphics and colour terminals as the industry seems to think.

In Houston, where the Astrodome dominates the NCC site as a monument to Thinking Big, the computer industry seemed to be concentrating on thinking small.

And the message is no longer that software is hoping to be the dominant feature of systems but now on - it evidently already is.

Meeting the needs of micro users

ONE of the most active aspects of NCC was disc and peripherals. As the microsoftware market continues to multiply, disc manufacturers are nipping in with a plethora of fixed, removable and floppy disc products to cater for expanding needs of micro users.

In a bid to keep its leading position in the peripherals market, Control Data announced seven new products at the show.

They include the CDC 9710 Removable Storage Disc, designed for use with mini and microcomputers, and CDC's first 5 1/4-inch Winchester disc, allowing storage of 19 million or 32-million bytes of storage. It is dubbed the Wren.

The 9710 caused a lot of interest, as many predicted that it would set new standards for the market. It is a 230 millimetre (9in) Removable Storage Drive (RSD), with a capacity of 82.9 million data bytes. It uses a front-loading data pack, the CDC 1209 containing three 230 millimetre discs. Data is recorded on the five data surfaces

at a maximum bit density of 10,000 bits per inch with 542 tracks per inch.

Among the other CDC announcements were the 9715 Fixed Storage Drive, a high-capacity quarter-inch cartridge tape transport for data storage back-up of up to 50 Mbytes of data from Winchester discs, called the Sentinel 92190; and a new eight-inch fixed and removable 50 million byte disc in the Lark range, the 9457.

The company pointed to the shorter life cycle of disc products as the driving force behind its new interface policy. CDC is aiming to build more intelligence into its products under its Intelligent Standard Interface strategy, with the secondary aims of reducing costs, increasing reliability and supporting future developments.

Marketing chief Tom Camp spoke of the fierce competition, especially from the Japanese, as well as the shortening life cycle of disc products, as the main reasons for the new strategy.

Gemini launch

IN one of the few introductions of new software for the IBM Series 1 at NCC, Gemini Information Systems launched its database system. The DDQuery system is described as an expanded database system with report writer, transaction processor and query facilities.

Colourful way to win first-timers

MAJOR US software publisher Microsoft has embraced graphics and colour terminals as a way of winning further first-time users.

As well as the Xenix operating system, based on Western Electric's popular Unix, Microsoft was running Forward Technology's Gateway scientific workstation and graphics system, which in turn owes a lot to the design concepts of Xerox's Smalltalk terminal. It allows great flexibility and manoeuvring on the screen as well as multiple displays of data.

"We don't think of it so much as just graphics," explained Xenix project leader Gordon Lerman. "What we're interested in is extending the use of Xenix to as wide an audience as possible. Putting this kind of capability with Xenix means that end users can use the much better and can use the system more easily. To call it 'graphics' is too narrow a definition, as it is part of a much larger movement to improve end-user interfaces."

Lerman reported that Xenix was selling well in the US, and that Microsoft was hardly able to keep up with orders.

'Top drawer' system an NCC sensation

IF any one product came close to causing a sensation at NCC, it was Grid's portable Compass computer.

The machine is about the size of a large coffee table book (11 1/2 in x 15 in x 2 in) and weighs 9 1/2 pounds. It fits comfortably inside a briefcase or the top drawer of a desk.

Compass has a bubble memory, built-in modem, its own software, and an amazingly clear yellow-on-black graphics and character display. The screen is hinged to the middle of the box, and flips open to reveal a 57-key keyboard. There is also a telephone handset, connected by one of two modular jacks at the back of the unit, which allows voice communications. The other jack provides connection with the public telephone system for voice or data transmission.

The Compass machine has its own operating system and software. It is based on the 16-bit 8086

and eight bit 8087 microprocessor, with 256K of RAM and a further 256K of bubble memory.

There was a constant crowd around the demonstrations of the Compass, and even Clive Sinclair, who made a flying visit to NCC, had to admit he was impressed.

Compass and the Navigator system of which it forms a part is the brainchild of another British inventor, John Ellenby.

Ellenby started the Grid Corporation two years ago in the US, and insists that although the idea of the Compass was his, the teamwork behind the system was far more important.

The market has been carefully evaluated by Ellenby, and those who predicted that the Compass would destroy Osborne's not-so-portable microcomputer were missing the point.

Priced at \$8,150, the Compass is hardly aimed at the micro home market. It is specifically aimed at



ELLENBY... His brainchild

the management market in the original sense of personal computing - a management tool which assists in decisions.

Grid conducted a careful survey of the Fortune 500 companies at which it is aiming its product. It discovered that managers held back from using computers because they could not access information when and where they needed it.

"We would prefer people to think of our systems as problem-solving kits rather than as great technological marvels", said Ellenby. "We find new areas of application every day. Next step is to add software for the IBM Series 1."

The Compass system uses a Unix-like file system, which can shrink or expand dynamically. All programs are menu-driven.

Smalltalk grabs the attention

ANOTHER attention-grabber at NCC was the Xerox Smalltalk system, which made an unexpected appearance at one of the Xerox stands during the last days of the show.

Smalltalk lets the operator work with different sets of data on one screen, displaying various "windows" which mix graphics and text. It has been hailed as the way forward in small system operations since it does away with the constraints of working in exclusive work modes, allowing users to run several different jobs at the same time.

Xerox has adopted the system, originally used in research, as the basis for a commercial product, the Xerox 1100 Interlist-D, which was demonstrated at NCC. As with many of the new products on show the emphasis was on the graphics and user interface.

User control is provided with a "mouse" - a hand-held operating control which controls a small arrow on the screen. This moves around opening up new "windows". But behind the impressive graphics lies a host of other development tools, which Xerox will be pushing as part of its entry to the small systems market.

Xerox does not plan to release the Smalltalk operating system generally however. "We've been using it for ten years or so in research," said the Xerox 1100 marketing manager Bob Boemister. "The 1100 Interlist-D will become available outside Xerox by the end of the year, but it will not be available for anyone else's machines."

Crowds also found another spectacular graphics terminal, the Forward Technology full-page system running on the Microsoft stand. The Forward Technology terminal works under the Microsoft Xenix operating system.

Program generator for multi-user environment

IT was difficult to move down any of the aisles of the NCC this year without coming across Yet Another Program Generator.

Program generators have become not just respectable but almost obligatory for any company wanting a go-ahead software image. One such, Business Express, was claiming to leapfrog the competition in both price and performance.

The Business Express system is a standalone system from the Systems Group, and was built from scratch for a busy multi-user environment.

The system can support about ten screens without sacrificing performance, partly because the software is written in assembly language for speed.

It works, as many applications generators do from a series of menus.

Priced between \$4,000 and \$6,000, the Business Express system is likely to find a large market as a standalone system without the help of CP/M and other popular operating systems.

Also on show was the British generator The Last One, its sensational campaign becoming somewhat tarnished by yet another launch. But like Business Express, it managed to bring a steady trickle of interest to the seminar room where visitors could play with the system.

Only on the final day of NCC did The Last One grab the attention from the competition. A last-minute link up with the Scott voice input kit allowed the generator to be put on show as a programming tool for the disabled, adaptable to any language. The voice-input system allowed manipulation of the menus by voice alone - an option which may well be open to other menu-driven systems.

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ROWLAND... "User can write tasks to control different parts of the system as autonomous programs."

Blurring the lines between languages

DIVIDING lines between programming languages may become increasingly blurred in the future as more specialist compilers are produced to combine the best features of each.

The most common reason for these hybrid languages is that scientific languages such as Pascal are now needed as part of factory automation or engineering systems. But they do not have the features essential in a wholly or partially commercial environment.

Parallel Pascal is one of the most recent cross-bred languages to appear. It was developed by consultant David Rowland for Interactive Technology Incorporated of Oregon, and is marketed exclusively in the UK by Unit-C, a newly-formed systems house specialising in factory automation.

"We needed to have a language that was both flexible and fully capable of all the features of Cobol

and other commercial languages, but with extra features to control the hardware," explained Rowland.

Multi-tasking was one of the features required, which was impossible in a structured language such as Pascal, although Modula, developed by Niklaus Wirth, came close to the specification. Rowland took the concurrent language options from Modula and combined these with Pascal, further translating the code into PDP-11 assembler language to speed execution. Parallel Pascal is the result. He also intends to develop alternative code generators for running on other machines.

"Using Parallel Pascal, the user can write tasks to control different parts of the system as autonomous programs," said Rowland. "It also offers a circular buffer, so that the program can store characters if they are generated too fast for the screen."



MOSELEY... "Magus allows processing to be mirrored in software mode."

Alternative to non-stop systems

MUCH has been written about software selling hardware. But a new product from UK systems house CAP may do the reverse.

CAP's latest offering, Magus, provides a real time software environment to link DEC PDP-11 and VAX-11 minicomputers. Based on the Ministry of Defence system design standard, Mascot, Magus effectively offers a cheaper alternative to non-stop systems from either Tandem or Computer Technology Ltd.

"Magus allows processing to be mirrored in software mode, rather than in the hardware, so that the user can implement systems requiring high reliability at the lowest price," explained Alan Moseley, project manager at CAP.

Depending on the application systems required, Magus costs about £7,000. If it is used to link two DEC PDP-11/44s, for example, it is possible to build a non-stop system for less than £80,000, Moseley says.

In addition to the non-stop capabilities, Magus offers an integrated set of utilities and development tools to aid programmer productivity, complete with standard diagnostic facilities for programs written in Coral, Fortran or "C", the language compiler used to write the Unix operating system. A "C" interface to Cobol is also to be provided.

"Ultimately I could see Magus running under Unix, but at the moment it sits on top of the RS/X multiprocessor system," said Moseley. "Our objective was to remove development overheads inherent in real time, which cause slow response. Under Magus all operations are contained in one task, on the virtual machine principle."

CAP expects Magus to be used in applications such as large scale process monitoring and industrial plant control, high speed data acquisition systems and real time simulators.

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'Piracy' exposed Pet show

THIS year's Commodore Show exposed more about software packages than dealer had bargained for, in the enforced vigilance of the products.

It was an example of "a distance". And while only the games made it, lights potential risks to business software security protection.

Martin Maynard, managing director of Reading-based Argon, was surprised to see a number of games for the Commodore Vic 20 including Alien 80, Amok on display at the stand.

Maynard's company has a wide European distribution for the packages. On request was told that Argon had been the games from an Amok contact called Mamele, a berth, and that as far as he knew the deal was at the board.

Fortunately Dave Lobb, production manager of Microwave Industries, also a company which develops programs, was at the stand confirmed that such European distribution rights been sold to Audiologic.

Argon withdrew the programs from sale, but only after other dealers had bought them.

"There were also game Commodore themselves," explained Maynard. "This is called Blitz, which is the City Bomber sold in the States."

Lambert, acting on behalf of company called Viscot, had proached Audiologic for sale of the programs in question a time before the Pet Show, and had taken several away with him.

"He probably bought the software in the UK, then took it to Australia to copy, or perhaps even used the samples from Viscot," said Maynard. "I couldn't possibly have bought it in the US because it would have been incompatible."

Managing director of Audiologic, Kerr Borland, was in the US unavailable for comment. He said he was aware that the program had been withdrawn.

"In the US we would definitely go to court, but as it is happening in the UK and Australia we have to go through other people," said Lambert.

He added: "We have had people sell our software before, but not so blatantly. At least they bothered to change the name of the program."

Audiologic is also considering legal action against Argon, but no injunction has yet been taken.

MICRO NEWS Future Tech to promote Micro Five in UK

DESKTOP business microcomputers from US manufacturer Micro Five have found a new promoter in Lichfield-based Future Technology.

Micro Five was left without a UK distributor when Apple took over Microsense and associated company Data Efficiency stopped handling the range.

Since business started on April 1, the three directors - John Krushner, John Nash and Nick Flowerdew - have signed up eight of the existing Micro Five dealers and are looking to expand this number to about 30. One likely source is existing MP5L dealers, Flowerdew says.

"Up till now they've been stuck with eight-bit machines," he says, "and are wanting 16-bits." Micro Five's Series 3000, the high end machine Future Technology will market, runs MP5L's BOS/5 on an Intel 8086 processor.

CPM-86 is also available on the Series 3000, although there is not that much application software around for it, Flowerdew says.

Compatibility key to Philips' uprating of PMDS system

ELECTRONICS giant Philips is to bring multi-user capability to its microcomputer development system. An uprated version, the PMDS II, uses the Motorola 68000 16-bit processor - second-sourced by Philips - and the Unix operating system to replace the proprietary processor and operating system used in the original 1979 machine.

Compatibility is a key part of Philips' philosophy, says Ken Wheeler, test and measurement division marketing manager in the UK. The new machine will run existing development software packages unchanged, and is compatible with current microprocessor adaptors. An upgrade kit to convert existing PMDS II will be available at "an affordable price" - £4,000 - says Wheeler, and the earlier model will continue to be sold.

Philips expects customers to start with single user systems, costing £16,000 and deliveries will begin in November. A maximum seven users can be supported. Memory starts at 256K of RAM, expandable to one megabyte, and a five or 21 Mbyte Winchester. Six more discs can be attached, giving nearly 150 Mbytes. A system to fit the average working team - three users and 21 Mbytes of hard disc - will cost £22,000.

Wheeler says Tektronix and Hewlett-Packard are the competition among independent suppliers of "universal" microprocessor development systems which support chips from a variety of semiconductor manufacturers. Tektronix has already gone to a Unix-based system for its multi-user applications, and Wheeler expects HP to go the same way.

While Philips is moving upwards in capability, semiconductor house Intel has extended its development system range downwards. It has announced a "personal" development system, IPDS, to be available early next year.



WHEELER... "Compatibility a key part of Philips' philosophy."

Battle to set standard for new micro-floppy discs

THE battle to set the standard for the coming generation of micro-floppy discs continues. While the Hungarian three-inch system marketed by London-based BATS-NCI gains momentum in the UK, another contender is scheduled to appear here in the next few months.

Hitachi, which developed a three-inch Compact Floppy Disc in conjunction with Hitachi Maxell and Matsushita Electric, is to market the system through its new Computer Products division in the UK. Pricing will be "very aggressive" which is taken to mean that the unit will cost less than 5 1/4-inch equivalents.

In the US six companies, headed by Shugart and Control Data, are attempting to set technical standards different from the Japanese systems available from Hitachi and from first-come Sony. Sony unveiled its 3 1/2-inch micro-floppy at last year's National Computer Conference in Chicago.

The pre-arranged standards by the US firms are seen by some as a move to relieve the Japanese grip on this new market. If so there could be the danger of an anti-trust challenge. Disc standards in the past have been derived from the first successful products, IBM's for 8-inch floppies and Shugart's for 5 1/4-inch drives, which were copied by other manufacturers.

The Sony design was boosted last month by a \$40 million deal with Hewlett-Packard to buy discs for its office automation products. It is also starting to be built into Japanese microcomputers, including Sony's own as well as Sord's.

US disc drive manufacturer Tandem, which withdrew from the US alliance, is due to bring out a 3 1/2-inch drive like Sony's this month.

IBM Japan has own Personal

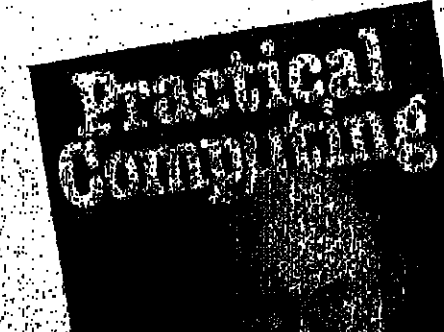
THE Japanese arm of IBM plans to launch its own personal computer rather than market the Personal Computer from the US parent. The US machine's inability to cope with Japanese users' demands for a machine capable of handling Japanese language, is cited as the reason for the launch.

Hardware and software for the machine is under development at IBM Japan's Fujisawa Labs. But it is likely to be assembled by another Japanese computer builder as the company says it does not have enough facilities for small machines.

IN THE SPOTLIGHT: CLIVE SINCLAIR. UNDER THE MICROSCOPE: HIS NEW ZX SPECTRUM

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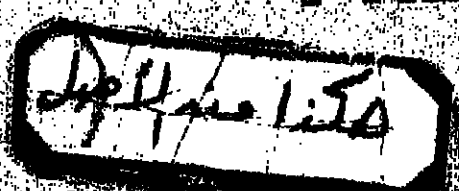


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SOFTWARE BRIEF

Boost for business graphics

RAPID growth of business graphics software in the UK is reflected in a spate of orders received by US-based Isco Graphics' subsidiary, Isco UK.

This month alone, orders have been placed by Lockheed, Standard Oil, Citibank, The Salk Institute for Biological Studies and Union Carbide, representing the US Department of Energy, for the DISSPLA and TELL-A-Graph packages.

Friendly Query

LEADING software house Altergo Software has launched an interactive Friendly Query System (FQS) to run under IBM's

CICS/VS and its own Shadow teleprocessing systems. This allows the release of Altergo Business Systems' online general ledger system, Spectra, to run on the IBM System 34 machines.

Holding prices

A PORTFOLIO management system for investment has been announced by Egan Associates Micro Facilities. Designed to run on Commodore 8032 or 8032 microcomputers, Portfolio holds details of share prices, clear details and a cross reference of investments. The software costs £650.

NCR range

NCR is developing a range of accounting packages for use with V-8300 series computers running under the Virtual Resource Executive (VREX) operating system. Over 20 orders have already been received for V-Accounting.

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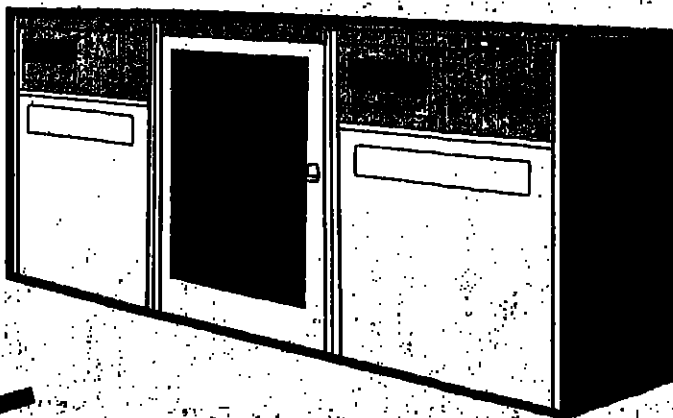
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by Andrew Thomas

OP SPOT

Cheshire firm hits on a scheme to cut 25% from maintenance costs

IF I were to tell you that you could have the same IBM engineering cover as you are getting now, with the same IBM spares, but for 25% less costs, you would either not believe me, or ask "Where do I sign?"

Over the last nine months, Cheshire-based Mainstay has attracted over 50 IBM users, mostly small systems division sites, away from direct IBM servicing to its own, cheaper, alternative.

How do they do it? And where's the catch?

To explain how the cost savings can be made requires some background knowledge of how IBM's maintenance works.

There are basically three courses of action open to IBM customers when it comes to maintenance contracts.

Firstly, normal maintenance. For a price - and a pretty big one at that - IBM will supply what-

ever spares are required, and provide as many hours of engineers' time as are needed to resolve any problems.

The second alternative available from IBM is time and material cover. In this case, for a substantially reduced fee, the same spares and engineers are supplied, but the customer has to pay for the parts and the engineers' time.

Thus the customer must decide whether to risk the failure of a particular machine against the cost saving involved in opting for T&M. As some IBM hardware is considerably more reliable than others, it may be possible to have full cover on devices likely to fail, and T&M on the more resilient kit.

The third choice open to the IBM user is to use a third party maintenance operation, which can either be very good or terrible. In the worst instances, customers

have been charged for complete power supplies and six hours of engineers' time when the actual fault was simply a blown fuse. (I was told this by an ex-third party engineer.)

Another problem with third party maintainers is that you cannot always be sure that the spares you are getting are the real thing. At least you know what you're getting when you use spares from the manufacturer itself, even if they do cost more.

Assuming that you want to stay with IBM's own maintenance, rather than going outside, and want to save money, but are not prepared to run the risk of going completely T&M, what course of action is open to you?

If a company were to take out an insurance policy, underwritten at Lloyd's, which covered the risk of having to pay out for engineers' time and the cost of spares - inci-

Engineers testing the IBM 360/67.

dentally, IBM charges the full list price for parts and does not take the defective units back for refurbishment under any form of exchange agreement - considerable savings could be made.

This is the basis for Mainstay's operation. The site maintenance agreement with IBM is terminated, and Mainstay itself contracts with the manufacturer for a T&M service. The insurance covers any charges for time or parts. The service to the user appears unchanged, but the cost reduction can exceed 25%.

Another benefit to the user is that preventative maintenance can be carried out at any time chosen, with no extra charge for out of hours working.

In addition, Mainstay's prices are fixed for 12 months from the date of agreement - any increase in IBM's prices is covered by the insurance, and the company also handles the bulk of the administration of maintenance, as engineering invoices are notoriously complicated.

Geoff Henderson, one of the men behind Mainstay, says: "The customer saves, we make a bit, and IBM takes a bit less than before."

"Most of our customers are the smaller sites at the moment. They tend to make quicker decisions and are more cost-conscious than large installations. Now we've got the numbers, we're going for the bigger customers."

Most cost-reduction exercises mean a proportionate increase in risk, but with the customer getting the same IBM cover and the same IBM spares, installed by the same IBM engineers, but for three-quarters of the price (or less - sites with more than three processors get special terms), I certainly can't see where any additional risk enters the equation.

My only concern is that I didn't have the idea first.

Service takes heat off computer room crisis

THE trouble with air conditioning in computer rooms is that the heat output of the original equipment is unlikely to remain unchanged as extra hardware is added. After a major upheaval, such as moving to a different vendor, it is likely that the original air conditioning unit will be unable to cope with the extra load.

Many machine rooms are equipped with extra, free-standing fans which stir up the air and provide extra help to the struggling fixed plant, but such measures are rarely effective.

Help is at hand, however, in the form of Maplin Mechanical Services. Maplin has launched a hire-and-air-conditioning-unit service which costs between £4 and £5 a week. The portable units can be installed without having to alter the building, and provide cooling of between 5,600 and 14,000 Btu/hour. (As a rough guide, 8,000 Btu/hour is sufficient to control the humidity and temperature of a 1,600 cubic foot room.)

The smaller units in the range are self-contained, and use a small flexible hose for the disposal of hot, humid air to the outside of the building. Topping up a water container and plugging into a nearby mains outlet satisfies all the requirements of the device.

The units are claimed to be quiet and unobtrusive in operation and as simple to operate as a domestic freezer. They may be bought outright for those who do not wish to rent.

One obvious application is for standby use in the event of failure of the main plant. Details from Maplin Mechanical Services, 1426 London Road, Leigh-on-Sea, Essex SS9 2UL. Tel: (0702) 79933.

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GILB'S MYTHODOLOGY

Principles of Infotecture - 5

All techniques have good and bad side-effects

THE fifth Principle of Infotecture states that: "A single technique will inevitably affect several critical attributes of the system at once. Some of these effects will be planned and desirable. Some effects, however, will be unplanned and undesirable."

Side-effects are often disregarded through simple ignorance. This ignorance is sometimes encouraged by "idea salesmen". They do not want to "complicate" our evaluation of their pet technique by bringing in negative aspects of their ideas.

Gerald Weinberg once defined an "expert" as someone who could also tell you "at least three bad things about their favourite technology". I think you will find that this is a useful and simple test of the source of ideas.

It is our responsibility to explore systematically all critical attributes of design solutions.

It is not enough to expect technical specialists to do so of their own accord. My experience is that technical experts are often unsystematic in exploring the possible negative side-effects of the new and untried technologies which they are considering.

Management must take the initiative in setting a framework for systematic consideration of the dangers of new technology.

Here is a list of suggestions for approaching the problem from a management angle:

- Make sure that all critical

system attributes are well defined - this means in measurable terms.

- Make sure that all technological elements of the solution are evaluated against the complete list of your critical attributes.

- Do not hesitate to demand written and contract guarantees from commercial suppliers regarding

I find it professionally rewarding to examine the dead or very sick projects which are foisted upon the world by technologists and which are not well organised by their management.

ing these critical attributes, as they will be in your planned environment. If they won't, you should!

- Insist on early paper evaluation techniques which evaluate the cumulative effect of all critical attributes. They will not give perfect answers, but they can give early warning signals.

- Insist on regular quality control techniques on all aspects of system design and specification. This is



Tom Gilb is an independent consultant, lecturer and author on computing topics.

the cheapest and most effective defence against human imperfection. Highly recommended is the Fagan/IBM Inspection method.

Finally, do not imagine for a moment that if you follow all this advice you are safe enough to take a chance on implementing a major system based on all this theoretical evaluation. You still need pilot tests, experiments and cautious commitment to implementation.

I will invariably design a system for early evolutionary delivery in many small steps (about 50!).

I am a systems pathologist. This means that I find it professionally rewarding to examine the dead or very sick projects which are foisted upon the world by technologists and which are not well organised by their management.

Invariably, I find that behind the failure is at least one critical attribute that was never under proper control. In fact most of the above basic common-sense rules of caution in a complex environment, were broken.

Fools still rush in, where angels fear to tread... even with computers. Be an angel!

Tom Gilb

FOCUS

Coming to terms with some of the strange names in computing

AT a time when computer companies are competing to offer fully integrated products, services and technology, little or no attention is being devoted to the integration of computer terminology.

Even the leading IT Year organisers would find it difficult to distinguish between such technical trade terms as teletex, telex, telex and videotex.

While the computer industry was in the main limited to a select body of professionals, many of whom were fully qualified members of the British Computer Society or the Institute of Data Processing Management Association, all was well. Interfacing was more a matter of being in the DP club or conference halls.

Only last month the managing director of Digital Equipment UK told a formal meeting of DP men that he would answer certain questions "offline". No one was in any doubt as to what was meant.

Similarly, the computer hobby freaks are quite capable of understanding what microcomputing is all about. For them Flips, Flops, and Floppies, Apples and Pets are meaningful terms. Such names as Bats, Bugs, Sorcerer, SuperSoft and Quicksilver inspire much collective confidence.

Meanwhile, equal levels of confidence are bestowed on the traditional DP market by such alpha configurations as DEC, NCR, IBM, NCC and CSA. Just how IBM, and more recently Digital Equipment, can hope to break into the personal micro club world without a name change is no doubt a matter which is occupying their respective sales managers. Certainly, had the new DEC Rainbow micro been named the DEC Bug, sales in all probability would have exceeded even those of the BBC Acorn.

A new national business equipment survey reveals that many small and medium-sized companies are totally confused by the electronic office marketing jargon. For the potential customer, integration is what the office manager expects of his team; the receptionist is expected to show integrity in forwarding all messages, the sales team integrity in their marketing approach and company management in dealing with salaries and promotion.

Transferring such terms to a collection of electronic office equipment often stretches the office manager's imagination and patience to breaking point, with the result that many meaningful office of the future integration plans are broken off. According to the survey, over 60% of small organisations have serious reservations as to the introduction of computer systems which involve communication technology.

Even more emphatic was the finding in relation to possible hidden costs and hidden meanings of technological terms. "The marketplace is all too often confused by manufacturers' jargon and technology issues," the report states. The survey discovered that only 18% of small companies, for example, are familiar with the term "system networks".

Unfortunately, the technology jargon factor does not appear to have crossed the collective minds

of the IT Year organisers. The prime mission seems to be money. Minister Kenneth Baker is opening yet more robotic factories.

Devoting some of the earnings and resources into producing a Users' Guide to Office Automation for mass and free circulation would be of more value than any number of micro trains and vans trailing around Crewe and Coventry in ings.

The first entry in the IT Year Guide would be Basic. This term is instantly recognised by the IT industry as a program language. User management, meanwhile, identifies the term as a domestic, no frills package, while the average high street micro science sees it as a term denoting value for money.

In all probability, office workers confuse Basic with the latest banging rock group.

Such sinister terms as Ethernet, ASCII, ROM, RAM, LSI, 10ci, ZX82 should be confined to the BIN and replaced by more user-friendly names.

It is time that basic simplicity returned to the DP marketplace. Without friendly help and assistance, there could be few users available to the industry's forecasting.

Alan Simpson

10 YEARS AGO

From Computer Weekly of June 15, 1972

UNIVAC announced plans to invest about £10 million in a new office and computer complex at Hanger Lane, North London, emphasising its faith in the UK as the world centre for software development... In a move to prod the government into making its long-awaited announcement over the future of the UK computer

industry, ICL withheld publication of its interim report to shareholders for several weeks... Contract negotiations were now completion between Computer Technology Ltd and the Computer Board for the provision of eight Satellite One Model 10 terminal systems for eight universities in the South of England.

HUMAN TOUCH

Controlling the accounts

A LEDGER may be considered subsidiary to another ledger. Almost always sales and purchase ledgers are subsidiary to the general ledger. Every ledger, whether subsidiary or not, must be self-balancing in that over the ledger the debits must equal the credits. This objective is achieved by use of control accounts.

Every credit posted to a subsidiary ledger is also posted to that subsidiary ledger's control account in the general ledger. The same happens for debits. The control account in the general ledger stands in the place of all the accounts in the subsidiary ledger.

The control account is "within the trial balance" of the general ledger and ensures that all its debits equals all its credits.

There is also a control account in the subsidiary ledger. Credits posted to the subsidiary ledgers control account in the general ledger are posted as debits in the control account in the subsidiary ledger, and vice versa. The control account within the subsidiary ledger is within the subsidiary ledger's trial balance and ensures that over the subsidiary ledger as a whole the debits equal the credits.

In accounting machine systems the control account in the subsidiary ledger is usually referred to as the control card.

The principle of double entry is preserved by the use of two separate control accounts in the general and subsidiary ledgers. The debits to one are posted as credits to the other and vice versa.



Cliff Dillaway is an independent consultant specialising in accounting software, taxation and payroll.

practice transactions that span a general and subsidiary ledger require the generation of a matching pair of debit and credit entries for the control accounts.

For example, sales invoices may be credited in total to a "sales made" account in the general ledger and debited individually to customers' accounts in the (subsidiary) sales ledger. Matching entries are required to debit the subsidiary (sales) ledger's control account in the general ledger and credit the control account in the subsidiary (sales) ledger.

Subsidiary ledgers only exist for convenience. The convenience is obvious in manual and accounting machine systems. The convenience persists in computerised accounting systems on account of the different types of supporting detail required by different ledgers e.g. sales - open item, purchases - balance forward and general - period balances.

Cliff Dillaway

DOWNTIME

Talking of machines...

THE saloon bar of the Dog and Buckle is often witness to statements of earth-shattering import. Only yesterday, I joined in a conversation regarding the merits of speech recognition and synthesis units.

"My recognition unit can identify six words accurately," ventured one.

"My synthesiser can speak pretty good English," retorted the other.

I could not resist the obvious question.

"Can the speech recognition

unit recognise what the speech synthesiser is saying?"

"Of course it can, in fact it would be easier than human speech because it is so rigidly formatted."

And then it hit me - a blinding flash of cathartic insight. I saw the future of man/machine communication. If a speech recognition unit can truly recognise 100% of the output from a speech synthesiser, then all that is needed is a reliable means of inputting the data to the synthesiser.

The ideal device is already available: the qwerty keyboard.

Computer language

THOSE strong-willed enough to read this column on a regular basis will be aware that I take delight in exposing the foibles of other users of the English language. What can all too easily occur should proof reading fall below the required standard can be purchased on a daily basis in the *Grammatical*.

But on this occasion, the offending publication is none other than that most respected of organs, the *Financial Times*. In a story on Prestel, the FT included a typographical error transforming the words "Computer memory" to "Computer Memory".

The appearance of this last word started the wheels grinding in the famous Chad vocabulary. Memory, ah yes... Spencer used "none" to describe a blockhead or buffoon. Memory - a collection of blockheads or buffoons.

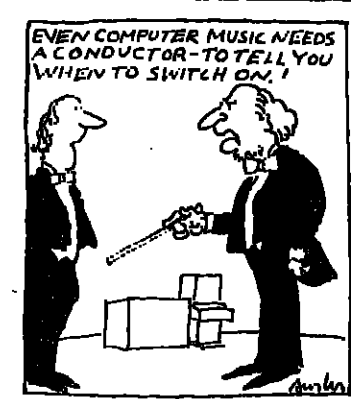
No wonder Prestel hasn't caught on.

Customs checkmate

IT has often been claimed that chess-playing programs have spawned major developments in the field of computer science. Someone in the US government has obviously been listening to these stories, for Bell Laboratories' chess-playing computer has been impounded by Customs officials on the grounds that, should it be allowed to travel to an International Chess Exhibition in Moscow, the Russians might be able to learn military secrets.

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No wonder Prestel hasn't caught on.



Housing the Seawolf

AN in-depth report appeared in one of our better quality national dailies on the pride of Britain's Navy, the Seawolf guided missile system.

This bane of enemy aircraft automatically detects any object approaching the ship in an intercept course, and will shoot it down without human intervention unless a large red button is pressed to inform the system that the aircraft is friendly.

The description of the Seawolf concludes with a description of the computers required to control it - seven computers, which take up "as much room as the average house".

Ah, those were the days.

First-class results at ICL

THINGS seem to be looking up for ailing computer giant ICL. Incidentally, one wonders how long the "ailing" tag will be applied to Robb Wilton's merry band, and if the "giant" reference should not be dispensed with in view of the somewhat reduced workforce. But I digress.

I refer to a "change" encounter while waiting for a train, with one of my erstwhile colleagues at the above-mentioned company. As the train arrived, he announced that he was travelling first class, while I was slumming it in second.

In my day, you were lucky to get sent by Rod Stig.

Sentimental scientist

WHAT makes someone buy a particular make and model of computer? Price/performance ratio? Availability? Bribery?

An academic at one of Britain's leading universities had worked for years in close proximity to a PDP-8 which was due for retirement. Faced with the loss of his favourite machine, and its replacement with a new-fangled, go-faster one, the gentleman in question took the only action possible in the circumstances - he bought the machine from the university for his own use.

"I bought it because I liked it," he admitted unashamedly.

One wonders how many of today's machines will be held in such high regard when their turn in the car-crusher arrives.

Their forte?

WHEN I mentioned the Barroughs entry into the microcomputer market to a colleague the other day, he had the timidity to suggest that this was an area in which the company was ideally suited.

Fearing that I might regret inquiring into his reasons for this statement, I nonetheless asked:

My worst fears were indeed confirmed when he replied that they're hardly noted for the excellence of their engineering support, so they ought to feel at home with micro - no one expects them to be supported.

Oh brave new world, that such cynicism is!

Computer Weekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, June 17, 1982

A world North of Watford

DOMINATED by foreign manufacturers, the UK computer industry tends to lose sight of the fact that there is a world North of Watford.

The lure of capitals like London, Paris and Amsterdam is powerful for international and multinationals. Not only do they offer the highest concentration in terms of market share, but also in prestige.

London's centripetal tendencies have been a cause of concern for successive post-war governments. Each has looked on in dismay as the traditional industries in the Midlands and the North have come under siege, and people have flocked to the South in search of jobs.

Most companies which could help stop the flow by developing their operations in the depressed areas have been reluctant to take the risk.

The present government is attempting to tackle the structural problems of the UK economy by concentrating its resources on strategic industries, including computing and microelectronics. It has recognised that any programme to achieve its aims must be implemented throughout the country. The South remains relatively unscathed by the burgeoning unemployment figures, although even the South has no cause for complacency.

□ □ □

To take one example, a regional breakdown of the figures for offers of grants under the government's Microprocessor Applications Project, given in the Commons recently by Under Secretary of State for Industry John Butcher, shows that London and the South-east still get the lion's share of the money - more than one-third. Depressed areas like Northern Ireland and Wales share a paltry five per cent between them.

The government is wont to explain this unequal treatment by saying it can only provide assistance to companies which put forward workable projects. In practice companies already based in the South tend to get the boost, which only exacerbates the structural problems the country is facing.

There are, of course, many notable exceptions. Some companies have carved out market niches for themselves in the North, as evidenced by the growing number of exhibitors at Computer Weekly's Compex North show, to be held next week in Manchester.

But such companies must feel increasingly worried by the deteriorating market conditions which sooner or later will have a knock-on effect on the demand for their products and services. It is not sufficient for the government to send travelling "awareness" shows around the country, while dogmatically sticking to its rigid "market forces" ideology.

□ □ □

Last week Information Technology Minister Kenneth Baker called for more joint ventures with overseas companies so that they are able to compete internationally. Behind his rallying cry is the belief that British companies must look to export markets for their future prosperity.

It is a message that has been given before, but it deserves to be repeated. The computer industry moves too fast for any high technology company, however small, to rest on the security of what it thinks is a secure local market.

But companies in the North, many of which are suffering as it is from huge staff lay-offs and a shortage of investment cash, may not be in the best position to mount effective export drives.

Governments usually do their thinking on a grand scale. Indeed, they are expected to. But enterprise on a small scale, in the North as well as other parts of the country outside the Home Counties, will feature heavily in whether the UK economy gets going again.

Private enterprise is doing what it can to make the North more attractive. But the government must act, too, and swiftly, or the region will not emerge "leaner and fitter" but will starve to death.

1984 and all that...

THIS week's example of the strange things people say about computers in the media, was sent in by J. Carr, of Tilehurst, Reading, who writes:

The early computers were only able to answer questions which consisted of two variables - for example, which retail outlet employs more than ten personnel? To ask more detailed questions it would be necessary to write down the questions. This was largely because, in the bad old days, computers tended to store their information one item after another, on magnetic tape.

LETTERS

Demand for Personal Computer

I READ with interest your leader (CW, June 3) on the IBM Personal Computer and agree with nearly all of it.

We started selling the IBM PC because of customer demand and sell only to end users. We do not regard ourselves as distributors, unofficial or otherwise although we are increasingly picking up business from ex-Microcomputer-land customers who could not get supplies of software and add-ons from them.

We have been trading for over two years now and have, I think, a fairly good reputation which we do

not intend to ruin by not backing the IBM PC's that we sell. All our customers are told that the IBMs we sell are grey imports and are not backed by IBM. They buy with their eyes open.

I would much prefer to buy from IBM UK and wrote to their Personal Computer project manager (yes, they do have one) in February to this effect. He said that they had no plans as yet but would consider us as dealers if we proved ourselves responsible. I believe that we are doing that.

I would like to point out two things in IBM's defence. Firstly, it

is software that people use and they will have to organise that in Britain - a time-consuming and difficult problem. Secondly, the Sirius 1 is aggressively priced and represents far better value for money than the IBM for most users.

We are also dealers for the Sirius and have advised anybody who cares to listen that it is a better machine for £1 than the IBM and more importantly, UK software will be more easily available.

D. SAUNDERS
Managing Director

KGB Micros, Slough.

Small system user group

YOU recently published a letter (CW, May 20) from a General Systems User Group. Your readers also ought to be aware that the IBM Computer Users' Association has a Small Systems User Group of 370 members. They meet five times a year in various parts of the country. Their next meeting is in Leicester on June 15/16 when they will discuss the System 38 and see demonstrations of the System 23. Displaywriter and the IBM Personal Computer.

There is also a regional group of the IBM CUA, the Scottish Group, which covers Scotland and Northern England and is predominantly for small users. Their next meeting is on September 9. Details of these meetings are available from Heather Spiciale on 01-551-1643.

G. F. W. GOODWIN
Public Relations Officer
IBM Computer Users' Association.

Take-off

WITH reference to the note by Boris Sedacca, "Portable word processing terminals take off" (CW, June 3) it is quite trivial to dump Microwriter text to any microcomputer by using the V24 interface adapter.

In particular we can supply a simple program to allow Microwriter text to be dumped to a Research Machines 380Z, running CP/M, so that letters, etc. can be edited and formatted using the TXED word processing system.

H. R. A. TOWNSEND
Special Medical Micro Software
Cirencester, Glos.

Sorry for pointing out the obvious.

R. E. BUCKLEY
University of Warwick.

Answer for solicitors

THE "final answer for solicitors", says Philip Hunter (CW, May 27), is "distributed intelligence, based on a network of microcomputers, each capable of performing word processing and accounting".

While a "computer on every desk" may well be the final solution 10 or more years from now, it is not a very helpful concept to the average firm of solicitors at the present time. Most firms require a more modest solution, adapted to the well-defined needs of book-keeping according to the very strict Law Society rules, obtaining basic management information, and saving typing time (and secretaries' sanity) by producing long documents on a word processor.

There are several different types of solution which might be appropriate to the needs of any one firm. For example:

1. A small country practice might choose a dual purpose microcomputer, with floppy discs, capable of both accounts and word processing.

2. A practice, large or small,

which already has a word processor, and which is rather frightened of computers (and there are many of these), might consider a Visible Record Computer. The advantage, from a solicitor's point of view, is that they maintain a complete history of each matter on a ledger card, in an immediately accessible and visible form.

3. A medium-sized practice with word processing needs as well as accounts, might choose one of the newer multi-processing microcomputers with built-in hard discs and cartridge tape back-up.

4. A large practice with more sophisticated management information needs might go for a true minicomputer system, with large hard discs and lots of terminals.

Before you can find the right answer to the needs of any particular firm, you have first to ask the right questions.

DELIA VENABLES
Microcomputer Advisory
Service,
Lewes, Sussex.

Liveware File by Dou

I'M THINKING OF BRINGING OUT A HOUSE JOURNAL...

...IT'LL RAISE THE ARMS MORALE...

...NOT TO MENTION AT LAST FINDING A USE...

...FOR THAT WORN PROCESSOR I'VE BOUGHT!

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PLESSEY PERIPHERAL SYSTEMS

What a distributed database management system means

The best known database management system, and in my opinion the only one liable to become an industry-wide standard, is the Cokolasy system. So this article is devoted to developing my theories in relation to a Distributed

The most complex change to the DDL will be in how we describe

records. The concept of the visit record remains unchanged. For

The extended Within sub-clause would be repeated as many times

If we want to store a record using node key values then the DML would be

The three options of FIND DUPLICATE would operate as follows:

- (a) If FIND DUPLICATE NO DAL were specified the

RECORD NAME IS record-name.

MINIMUM FRAGMENT LENGTH	MINIMUM FRAGMENT LENGTH
----------------------------	----------------------------

(c) If FIND DUPLICATE ALL were specified then all occurrences of the record with the same CALC key would be found. It should be remembered that with all three options of FIND DUPLICATE the limits of the search will be established by the initial FIND ANY. Thus a FIND DUPLICATE ALL will find all the occurrences of a record in the database unless the preceding FIND was a FIND ANY without the NODAL option.

**integer-8 CHARACTERS
RECORD LENGTH**

ALL

HOW many times, on average, must a conventional six-sided die be thrown in order to produce every number from 1 to 6, at least once each? Note that the problem calls for the *average* number of throws, not the *most probable* number, which is 11. The reason for the change of a difference is that the "distribution" of results is

not symmetrical. However, the thrower is, the probability of success is fewer than 50%. But if the thrower is very good, it might take 50 throws, or 1,000 abilities mean that the number of throws to get the right number is 500.

Answer: Page 55

**Pick the wrong computer salesman
and you'll get the wrong computer.**

Name _____
Position _____
Company _____
Address _____

Telephone _____

Honeywell

As well as your office.



Why wait?



Norsk Data Ltd.,
Nord House, Pelican Lane,
Newbury, Berks RG13 1NU
Tel: Newbury (0635) 31465
Telex: 849819

Name
 Title
 Company
 Address

MINIMUM FRAGMENT LENGTH

**integer-8 CHARACTERS
RECORD LENGTH**

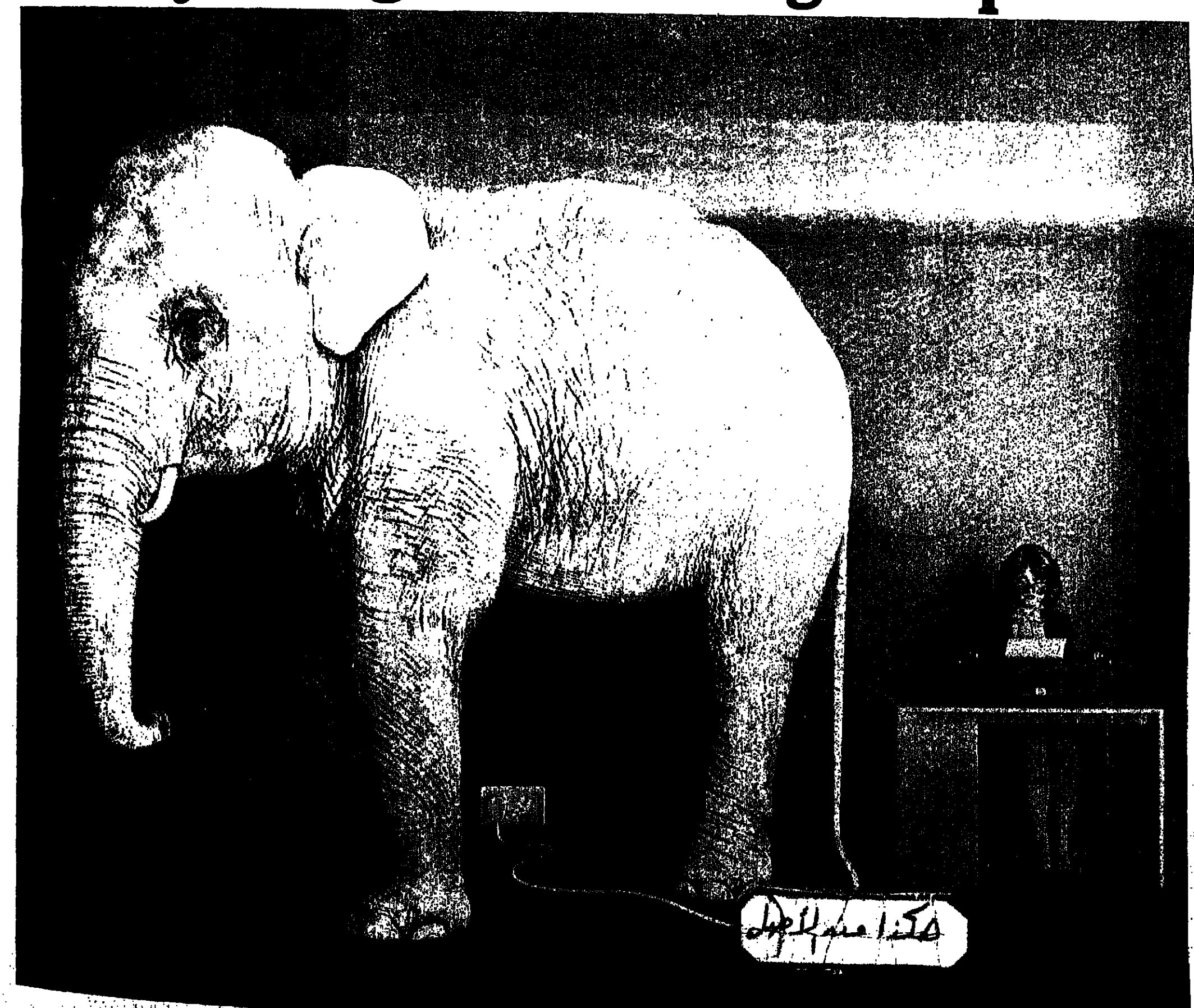
DUPLICATE recd

ALL

HOW many times, on average, must a conventional six-sided die be thrown in order to produce every number from 1 to 6, at least once each? Note that the problem calls for the *average* number of throws, not the *most probable* number, which is 11. The reason for the change of a difference is that the "distribution" of results is

not symmetrical. However, the thrower is, the probability of success is fewer than 50%. But if the thrower is very good, it might take 50 throws, or 1,000 abilities mean that the number of throws to get the right number is

Answer: Page 55



PEOPLE 'PR' and technical directors for ICL

ICL has made two top management appointments. Mike Watson has been named technical director and Robin Kinnear director of corporate communications.

Watson, 35, joins the company from Honeywell, where he was technical director of Honeywell Europe SA, based in Brussels, immediately before joining ICL. He also held positions in the UK and the US for the company.

Kinnear will be responsible for worldwide public relations and advertising, international communications, public affairs and government relations at ICL. He was formerly with Control Data, where he was director of international communications, based in Minneapolis.

Before that he was a director of PR consultancy D. H. Edelman. He headed the consultancy's technology group and clients included Clive Sinclair of Sinclair Research.

■ Chris Base, Richard Atherton and Steven Akroyd have joined the sales staff at Oceanic's word and data processing division. Base was previously with GEC, Atherton was formerly a freelance consultant and Akroyd joins from Picher.

■ Pat Endacott has become national field engineering manager with Prime UK. Previously she held the same title in the digital systems division of Texas Instruments.

■ Philip Harvey has joined Arbat as a salesman specialising in banking.

■ Christopher Nabavi has joined Transtel Communications as manager of technical operations. He was formerly with Digital Electronics (Kontrol), where he was manager of the electronics division.

■ David Throup of Micro Consultants has been promoted from UK marketing support engineer for the Iris range to international marketing support engineer for the complete data acquisition range.

■ Jeff Evans has joined Transducers (CEL) as sales director. He was previously sales manager with Davy Instruments.



After opening the Knowsley Commercial Training Centre at Huyton, Merseyside, Environment Secretary Michael Heseltine looks at the equipment provided by ICL for practical experience training given to about 50 unemployed young people. The centre is jointly sponsored by Unilever and Knowsley Borough Council.

■ Bill Macpherson has been appointed director of UK marketing and sales at Fortune Systems. He was previously sales manager for General Instrument Microelectronics, covering Europe, Africa and the Middle East.

■ Ian Mellis has been appointed project manager, financial systems at BDC Cabinets. He was previously assistant computer manager at Joseph Stocks and Sons.

■ Richard Morgan has been appointed customer services analyst at LMR Computer Services. He was formerly with Foster Wheeler as systems engineer.

■ Terence Byrne becomes division head at ESI London and Ian Mellis has been appointed general manager of the company. Byrne is also a marketing manager with the company. Mellis was previously general manager with Active Electronics.

Apple UK names head of new-look sales team

A DIRECTOR of sales has been appointed at Apple UK to head the company's newly structured sales team.

Keith Hall, previously UK sales manager at Commodore Business Machines aims to increase sales by directing the sales force in providing more support for the Apple dealer network.

David King, formerly sales development manager for the medical and education markets has been given an extended role as

sales development manager. John Hill becomes field sales manager. He was previously field sales supervisor.

The company's national accounts department has two new national account executives, Malcolm Farrar, former Case sales manager and John Heppel, who joins from Mars Ltd.

The company moved to large premises last month and can be contacted at Eastman Way, Hemel Hempstead, Herts.

■ Susan Pearson has joined the UK arm of ADR as consultant in the company's word processing unit, having trained with the BTC development division in Princeton, New Jersey.

■ Chris Cundy has joined Systime as corporate credit manager. He has been with the company for two years, as general manager for the South-east region.

■ Jim Day, formerly manager of business planning and projects in ICL's logistics division, has joined Universal Computers, UCL, as systems manager.

■ Mike Rose has become managing director of Delta Data Systems, and David Longley national sales manager. Rose was previously customer services director with Delta, and Longley joins from Harris where he was marketing manager of the information systems international division.

■ John Lowe has been appointed Northern regional manager with Computer Peripherals (System). He joins the company from Naxa where he was national sales manager.

■ Roger Clarkson, David Pies and Rick Rothwell-Gilroy have taken senior management appointments with GKN Building Services. Clarkson, who becomes systems manager, was previously group data processing manager for a leisure company. Pies, who was formerly Southern area sales manager with the company's hire and sale division, becomes financial manager. Rothwell-Gilroy joined the company in 1966 as its contract services division brand manager. He returns to head office as divisional accountant/administration manager for the hire and sale division.

■ Barry Faith has been appointed UK sales executive at Omnibus. He has been in the electronics and computer industries for 18 years.

■ Rob Owen, formerly project manager with Intergraph, has been promoted to sales executive for the company's South-east England and Central and East London regions.

■ Roger Halliday is now site manager at Xylogics, where he has past two years he has been responsible for technical support of the company's disc drive controllers.

■ Mike Rudd has joined CMC Leasing as manpower development manager after 21 years with Burroughs, where he held senior posts in the US and the UK.

DIARY

JUNE 18
Communications - getting it all together. Sir George Jefferson, chairman of British Telecom. BCS, Royal Society, London SW1. Details BCS external relations dept.

JUNE 20
Commercial use of APL and achievements. UK APL User Group. Details G. Sutcliffe 01-788 7272 ext 2715.

JUNE 23
Visit to the Midland Railway Trust. BCS Nottingham Group. Details Ray Fowler on Nottingham 415415 ext 4725.

JUNE 25
Fenner and Pet computer networks. BCS Sussex Microcomputer Group. Meeting Room, King and Queen, Marlborough Place, Brighton. 7.30.

JUNE 27-28
Computer-aided design of filter networks. Second IBE vacation school at University of Essex. Details IBE, 01-240 1871.

JUNE 28
Local area networks. BCS WP/OA SE branch. United Reform Church, Small Hall, Addiscombe Grove, Croydon. Details Sandy Hathaway 66-35925.

JULY 6
Briefing expert systems. Edward Feigenbaum. BCS Royal Society Group/SPL. Royal Garden Hotel, London. Details SPL Fifth Generation Computer Project 0235 24112.

JULY 6-9
Man/machine systems, international conference. BCS/IBS. UNIST, Manchester. Details IBE 01-240 1871.

JULY 7-9
Second British national conference on databases. BCS/IBS. BCS/Universities of Aberdeen and Bristol. Bristol University. Details Dr M. J. R. Shaw 0272 24161 ext 846 (mornings).

JULY 7-9
Fifth generation international conference. BCS Expert Systems Group/SPL. Royal Garden Hotel, London. Details SPL 0235 24112.

JULY 15
Auditors' bridge trust. BCS Auditors' Association Ltd. Little Bay Club, Bell Wharf Lane, Upper Thames Street, London EC2A 5.00.

JULY 26-28
Electronic image processing. International conference. IBE at University of York. Details IBE 01-240 1871.

COMPUTASTARS - NORTHERN HEAT

Barclays women scoop DP Olympics honours



Heywood & Partners 1 captain Choe Bennett winning his heat of the 100 metres.



Sponsored by Computer Weekly

MEN'S TEAM RESULTS

Rank	Name	Points	Total
1	Rowntree Mac 1	25 33 32 32 42 36 31	263
2	Heywood & Partners 1	30 33 32 32 35 21 36 38	261
3	Barclays Bank	28 42 26 31 35 39 34	261
4	Compuer	26 45 26 33 27 36 30 33	256
5	PMSL	25 36 23 32 38 24 35 39	252
6	Record Ridgeway	17 27 32 27 45 34 30	245
7	Rowntree Mac 2	26 36 34 24 20 36 37 24	237
8	United Biscuits	28 42 35 27 28 21 22 32	235
9	Sheffield Insulating	22 42 26 20 26 21 26 30	213
10	GMT	28 33 20 28 27 21 21 25	208
11	British Telecom	26 30 29 18 18 27 21	199
12	British Mail Order	13 36 31 16 26 33 18 22	195
13	Digit 1 Leeds	20 30 27 25 21 21 25 29	192
14	Digit 1 Leeds	20 30 27 25 21 21 25 29	181
15	Data Logic	20 21 30 21 22 20 24 18	181
16	Digit 1 Leeds	22 33 30 19 14 30 14 12	174
17	Scottish Widows	15 18 24 19 28 24 18 26	172
18	Heywood & Partners 2	28 19 20 25 15 27 18 25	171
19	Provincial B. Soc.	15 27 22 25 17 21 21 21	163
20	British Olivetti	22 9 34 13 18 30 17 19	162
21	David Brown Gear Inc.	20 24 32 12 21 18 11 22	160
22	NCC	18 34 21 17 15 21 20 15	150
23	Digit 3 Warr	6 28 13 12 6 20 13	

MEN'S INDIVIDUAL RESULTS

Rank	Name	Points	Total
1	Bill Edwards (Heywood)	13 11 13 13 15 7 13 13	98
2	Trevor Reed (PMSL)	9 12 12 15 14 8 12 15	97
3	Mike Hawtree (Rowntree 1)	7 11 12 11 10 14 13 11	90
4	Jack Cook (Compuer)	9 12 12 11 10 14 13 11	86
5	Alan Pennington (Barclays)	9 14 11 9 11 13 12 86	
6	Keith Taylor (Record Ridgeway)	6 9 10 11 8 15 15 10	84
7	Mike Jones (Rowntree 2)	6 12 12 9 8 12 13 9	81
8	Robert Hirst (United Biscuits)	9 14 11 9 8 12 13 9	80
9	Michael Hill (Sheffield Insulating)	5 14 9 11 11 7 10 11	78
10	Phil Reed (Digit 1)	8 10 14 8 9 8 9 7	73
11	Chris Best (Digit 2)	9 10 12 10 4 6 10 11	72
12	Dave Barrow (Data Logic)	8 10 14 8 9 8 9 7	67
13	Wayne Ryder (NCC)	8 7 11 9 10 7 6 9	67
14	Mark White (Royal Insurance)	8 10 12 10 7 7 7 6	66
15	Barclays Chantry (Manchester Transport)	8 12 10 4 9 11 7 7	66
16	Neil McCordale (Scottish Widows)	9 6 10 7 8 9 4 9	62
17	Philip Sanderson (Provincial)	5 9 10 9 7 7 6 7	60
18	Neil McCordale (Scottish Widows)	5 9 10 9 7 7 6 7	60
19	Peter Jackson (Olivetti)	10 3 14 7 9 8 6 9	57
20	Michael Selby (David Brown)	5 8 15 3 2 6 7 6	52
21	Ian Ryder (NCC)	4 2 11 7 6 5 9 6	50
22	Alan Ramsey (Digit 3)	7 2 12 5 6 2 7 6	47

WOMEN'S TEAM RESULTS

Rank	Name	Points	Total
1	Barclays Bank	34 45 31 34 40 45 37 37	333
2	Rowntree Mac	22 42 27 34 19 27 36 26	203
3	British Mail Order	33 36 22 28 26 30 22 27	224
4	Reckitt & Colman	30 36 28 22 25 36 25 27	219
5	Heywood & Partners	17 6 30 16 21 24 16 24	187
6	PMSL	19 18 20 26 6 19 19 153	
7	Royal Insurance	17 18 27 11 8 15 12 6	114

WOMEN'S INDIVIDUAL RESULTS

Rank	Name	Points	Total
1	Elizabeth Porter (Barclays)	14 15 14 14 15 15 15 15	117
2	Kathryn Gray (Reckitt & Colman)	11 7 10 11 11 12 11 11	84
3	Jo Cartledge (Rowntree 1)	17 12 10 8 9 12 11 13	83
4	Jo Cartledge (Rowntree 2)	14 12 10 11 10 10 10 10	80
5	Elizabeth Porter (PMSL)	7 2 12 10 11 8 9 13	80
6	Paul Harrison (Heywood)	8 12 7 8 9 2 7 10	63
7	Paul Harrison (Royal Insurance)	6 11 6 8 9 2 8 9	58
8	Kay Glynn (Digit 1)	11 6 13 2 2 5 3 2	44

Events are (left to right): shot, rugby relay, putting, jump, 100 metres, football hockey, vault, 1500 metres, 1/2 mile, 1/4 mile, 1/8 mile, 1/16 mile, 1/32 mile, 1/64 mile, 1/128 mile, 1/256 mile, 1/512 mile, 1/1024 mile, 1/2048 mile, 1/4096 mile, 1/8192 mile, 1/16384 mile, 1/32768 mile, 1/65536 mile, 1/131072 mile, 1/262144 mile, 1/524288 mile, 1/1048576 mile, 1/2097152 mile, 1/4194304 mile, 1/8388608 mile, 1/16777216 mile, 1/33554432 mile, 1/67108864 mile, 1/134217728 mile, 1/268435456 mile, 1/536870912 mile, 1/1073741824 mile, 1/2147483648 mile, 1/4294967296 mile, 1/8589934592 mile, 1/17179869184 mile, 1/34359738368 mile, 1/68719476736 mile, 1/137438953472 mile, 1/274877906944 mile, 1/549755813888 mile, 1/1099511627776 mile, 1/2199023255552 mile, 1/4398046511104 mile, 1/8796093022208 mile, 1/17592186044416 mile, 1/35184372088832 mile, 1/70368744177664 mile, 1/140737488355328 mile, 1/281474976710656 mile, 1/562949953421312 mile, 1/1125899906842624 mile, 1/2251799813685248 mile, 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mile, 1/2854495385411919762116571938898982488178688 mile, 1/5708990770823839524233143877797964976377376 mile, 1/11417981541647679048466287755595929952754752 mile, 1/22835963083295358096932575511191859905509504 mile, 1/45671926166590716193865151022383719811019008 mile, 1/91343852333181432387730302044767439622038112 mile, 1/182687704666362864775460604089534879244076224 mile, 1/365375409332725729550921208179069758488152448 mile, 1/730750818665451459101842416358139516976304896 mile, 1/1461501637330902918203684832716279139952609792 mile, 1/2923003274661805836407369665432558279905219584 mile, 1/5846006549323611672814739330865116559810439168 mile, 1/11692013098647223345629478661730233119160878

COMPEC NORTH PREVIEW - 1

Close on 200 stands reflect industry's buoyancy in North as exhibition returns to Manchester for second year

Compec opens shop window on the North

WHILE the heart of the UK computer industry may be pounding within a 50-mile radius of central London, there is plenty of activity in the outlying regions. So for the second year running Compec goes to Manchester.

Compec North, which will be held at the Belle Vue exhibition centre in Manchester from June 22 to 24, follows the successful formula of Compec, the UK's largest annual computer show held at Olympia in London.

Compec at Olympia gives a blanket coverage of all areas of interest to the computer industry, while Compec North is a regional show.

One of the exhibitors there last year, Harry Thomas, director of data communications company Timeplex UK, said: "The North has been neglected. Compec North is a shop window for us."

Compec is very much a show for professionals, and not very much at home with the first-time buyer or the home computer user, whereas Compec North makes clear the fact that its doors are open to anyone who wants a computer.

The buoyancy of the computer industry in the North is demonstrated by the size of Compec North in only its second year. The number of stands, which last year reached 150, is close on 200 this year.

The importance with which international companies view the North is exemplified by the choice made last year by Japanese manufacturer Sharp of Compec North as the venue for the release of its new

microcomputer, the MZ80B. Sharp has its UK base in Manchester, and will exhibit again this year.

The choice reflects the wide spectrum of visitors Compec North seeks to attract - end users, OEMs, and other computer companies in the North.

Last year, 4,271 visitors went through the doors of Compec North during the three days of the exhibition. The numbers are expected to increase substantially

COMPEC NORTH'82

BELLE VUE MANCHESTER
JUNE 22-24 1982

this year, and again they will come from a diverse range of organisations.

The list in 1982 included representatives from the banking, finance, and insurance industries; telecommunications, electronics and engineering; construction, metallurgy and chemicals; printing, research and large retail groups; national and local government establishments; police and the armed forces; and large manufacturing companies and the major nationalised industries.

To satisfy the varying backgrounds and needs of its visitors, Compec North will have a diverse

array of exhibitors.

The touchword of the Eighties is office automation, although some say that office automation is no more than distributed processing, the by-word of the Seventies, in a different guise.

The very boundaries of computer technology are being lost. In the US last year, according to IBM vice-president and chief scientist Lewis Branscomb, 6.5 million microprocessors were fitted into new automobiles. And with a capacity to build 25,000 microprocessors a day, General Motors is able to claim that it is the largest volume producer in the world of computers in their broadest sense.

Some say that the era of the microcomputer had not really arrived - at least for the commercial as opposed to the home market - until industry giant IBM gave its stamp of approval by making its own entry. But in spite of growing sales in the US, IBM's Personal Computer has not yet been officially released to the European market.

That the computer industry still remains an entrepreneurial one is demonstrated by the fact that, official release or not, the IBM Personal Computer is already on sale in the UK, and a growing number of software companies are undertaking to develop applications packages for it.

But other major computer manufacturers such as Digital Equipment, ICL, Sperry Univac, NCR, and Data General have announced their personal computer offerings to the UK market. And most of these products will be



Science parks, like this one at Birchwood, Warrington, are attracting new, high technology industry to a depressed area. See page 27.

found at Compec North, though they will be shown by the distributors rather than the manufacturers of the equipment.

Zygal Dynamics, of Bicester, Oxfordshire, is one of the five UK companies which has been appointed by DEC as an authorised distributor of its highly successful terminals. Zygal is now marketing the Robin, the upgrade board for the VT100 which turns the display terminal into a CP/M-based microcomputer.

In May DEC made its worldwide release of the remaining elements of its programme for the personal computer market, and it

is expected that these products will be sold in the UK through its terminal distributors.

Also from Zygal is the latest 80 character per second daisywheel printer from Japanese manufacturer Fujitsu, as well as the Diablo daisywheel, and matrix printers from DEC and General Electric. While developments continue on new printer technology such as laser and ink jet printing, the matrix printer, in which vertical arrays of dot elements move horizontally to produce characters, still dominates terminal printer technology.

For the second year running London microcomputer company

Rair will be in Manchester to show its wares to the local market. But this year it carries an additional feather in its cap with its selection by ICL as the provider of ICL's own personal computer. The deal with Rair was one of the many collaborative ventures that ICL's new managing director Robb Wilmot initiated during his first year at the helm of the UK's leading, but troubled, computer manufacturer.

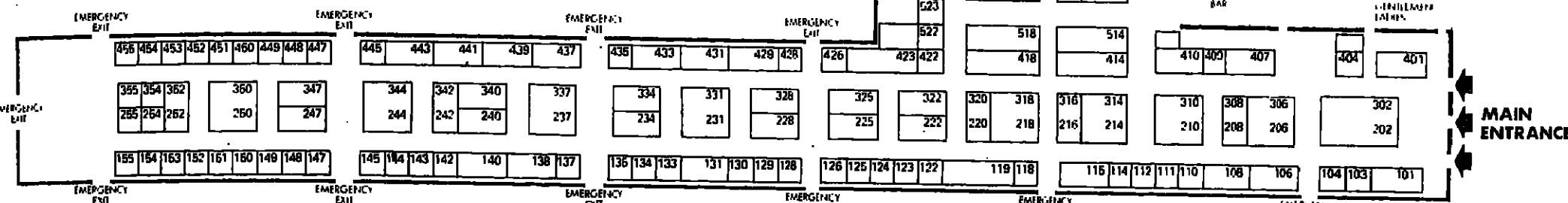
Stealing a note out of IBM's book, ICL is calling its product the ICL Personal Computer. ICL will

● Turn to page 25

COMPEC NORTH PREVIEW - 2

COMPEC NORTH'82

BELLE VUE MANCHESTER
JUNE 22-24 1982



The floor plan of Compec North 82.

Industry leaders put their DP wares on show

● From page 24

manufacture the Rair 330 under licence at its Kidsgrove plant.

The Rair 330 has an Intel 8085 microprocessor which runs under CP/M or the multi-user MP/M operating system. ICL's version will include a 5 1/4-inch hard disc, 0.5 Mbytes of floppy disc, a printer and a display unit for about £6,000. The Rair 330 supports CISC and Basic from Micro Focus.

Another CP/M micro on show will be the Multivision business system from ADDS (UK). A basic system includes 64 Kbytes of memory, one screen and 7 Mbytes of disc storage. It can be expanded up to four screens, 10 Mbytes of disc, and 256 Kbytes of memory. To complement the usual accounting software, the Multivision system can also run word processing and a database management package.

The combination of word and data processing capabilities in the same unit has been an increasing trend. In order to attract the market for office automation, vendors are beginning to realise that a hodge-podge of different terminals all performing distinct functions could soon effect anarchy rather than efficiency in the office environment.

A multifunction workstation which goes a long way to meet these needs will be shown by Computer Technology Ltd (CTL) of Hemel Hempstead. The 16-bit micro was developed by a small company on the West coast of the US, rather confusingly named Convergent Technologies. It at least saves CTL the trouble of changing the logo on the machine. Convergent Technology is one of the bright stars of Silicon Valley, and has had a rapid rise to fame since it was formed only a few years ago by ex-Intel, Xerox, Digital Equipment, and Texas Instruments senior executives.

After CTL became UK distributor for the product - sold mainly to OEMs - Burroughs, NCR, Thomson-CSF of France, and US office equipment manufacturer Savin have signed agreements with Convergent to incorporate the micro in their own product lines. It forms the basis of Burroughs' 820 series, the new small business system it released in May, and is being used by NCR as the word processor element in its office system.

The CT range uses a 16-bit Intel processor and offers mass storage, high quality graphics, and a up to 16 units can be clustered in a group, each workstation having its own processing power but able to share resources. Recently, American conglomerate TRW has been appointed by California-based Convergent Technology to handle the worldwide marketing rights for

the micro. But that will not affect CTL's position in the UK market, according to a TRW spokesman.

The National Computing Centre has its headquarters located in Manchester. Set up in 1966, the NCC acts as a clearing house for information about the UK computer industry. It is also active in a large number of training programmes in programming, data communications, systems analysis, and databases.

NCC administers a number of government-sponsored programmes, with active involvement in, for example, the software products scheme which has just been allocated an additional £10 million in support. NCC promotes its own software packages, most notably perhaps Filetab, a report generator which is in use at well over 1,000 installations worldwide.

NCC's choice of Manchester as its base is not surprising considering that it can claim to be the home of computing in the UK. The world's first commercial computer was manufactured by a local company, Ferranti.

The machine, Ferranti Mark 1 Star, was the result of development work which began at Manchester University.

Ferranti programmable terminal systems, the PT7 range, are alternatives to the ICL 7502 and IBM 3270 cluster terminal systems. In addition Ferranti has a range of floppy and cartridge discs, as well as terminal systems for interactive working and file handling which it will roll out at Compec North.

With the country as a whole in an economic recession, the North has had more than its fair share of suffering. But there are still opportunities for enterprising companies or individuals, and when the economy begins to shake itself out of the doldrums, the North is expected to be as strong a market for the computer industry as the South-east.

According to figures compiled last year by the National Computer Index, there are as many mainframes (228) and nearly as many small business computers (149) in Manchester as there are in the banking district of London. But it had only 222 minicomputers compared to 3,280 in the London area.

David Fairbairn, director of the NCC, has estimated that when the recession ends there will be a shortage of some 40,000 analysts and programmers, of which up to 12,000 will be in the North.

A company typical of those which have made their businesses in the North is success in Terminal Display Systems of Blackburn, Lancashire, a distributor of terminals and computer peripherals for a number of American companies.

TDS established itself in Blackburn in 1974 through a direct financial link with the traditional textile industry, and it played upon that link to develop monitor-

ing systems especially designed to aid textile producers.

Anticipating that computer users would begin to demand colour monitors, TDS was one of the first to exploit the technology. It will be showing at Compec North its Easycolour 4200 terminal which was designed and is manufactured in the UK. It will also exhibit its intelligent microprocessor-based terminals with powerful data editing and forms generation facilities, with models that offer emulation for IBM and Burroughs users.

While TDS is a typical home-grown Northern England firm,

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The exhibitors

Stand number	Exhibitor	Stand number	Exhibitor
104	Abacus Computer Marketing (North)	328	Innac Data Systems Ltd
105	ADDIS (UK) Ltd	329	Interfax Electronics Ltd
106	Air Sales	330	Karnadown Ltd
107	Amper	331	KC Business Systems Ltd
108	Andrew Jacobson Ltd	332	Kendata Peripherals Ltd
109	Andrew Industrial Equipment Ltd	333	Kendata International Inc
110	Benson UK	334	D. Kipping Ltd
111	BFI Electronics Ltd	335	Kode Ltd
112	British Telecom	336	Kone Instruments
113	Brown's Operating System Services Ltd	337	Leasham Ltd
114	Calcomp Ltd	338	Manitron Division - Fiection Ltd
115	CASE	339	Manitron Tally
116	Cristle Electronics	340	Manpower Services Commission
117	Cifer Systems Ltd	341	MAP Computer Systems
118	Cii Honeywell Bull	342	MAR
119	Code UK Ltd	343	Master Systems (Data Products)
120	The Coman Group	344	Merit Computers Ltd
121	Computer Talk	345	Micom Borer Ltd
122	Computer Weekly	346	Micro Design
123	Computing	347	Micro Systems
124	CPU	348	Midletron Limited
125	CPR Consultants Ltd	349	National Computing Centre
126	CPU Peripherals	350	Newbury Laboratories Limited
127	CTC Computers	351	Nobis UK Ltd
128	Danic Ltd	352	Non-man Magnetics - Service Service
129	Datadigital Computer Systems	353	North Data Group
130	Data Type	354	NSC Computer Shops
131	Deutsche Ltd	355	Penny & Giles Computer Peripherals
132	Delta Data Systems	356	Pilkington P.E. Ltd Hytron Products
133	Department of Industry	357	Positron Computers Ltd
134	Devent Data Systems	358	Pragma Ltd
135	Diocell Electronics Ltd	359	Racal Melp Ltd
136	Direct (UK) Ltd	360	Rair Ltd
137	Distributed Management Systems Ltd	361	Raven Computers
138	DN Computer Services Ltd	362	Rohan Computing
139	Donoghue Information Systems Ltd	363	Sharp Electronics (UK) Ltd
140	Electrographic Ltd	364	Sumlock Computing
141	Eurocom Data	365	Systems International
142	Eurocom Data Products Ltd	366	Tammy/Great Northern
143	Facit Data Products	367	Tektronics UK Ltd
144	Farnell International	368	Terminal Display Systems Ltd
145	Ferranti Computer Systems Ltd	369	Terminal Systems Services Ltd
146	Fungus Computer Product Ltd	370	Thorn EMI Datacash Ltd
147	GCS Engineering	371	Times Ltd
148	GEC Computers Ltd	372	Truam Microsystems Ltd
149	General Datacom (UK) Ltd	373	Trend Communications Ltd
150	Gold Silver Computer Systems Ltd	374	Veratronics Electronics Ltd
151	Graham Wright Computers Ltd	375	Volkswagen (UK) Ltd
152	Guardian Computer Services Ltd	376	Willis Computer Supplies Ltd
153	Haigh & Hochland Ltd	377	X-Data
154	HAL Microsystems Ltd	378	Your Computer
155		379	Zentec International
156		380	Zygal Dynamics PLC



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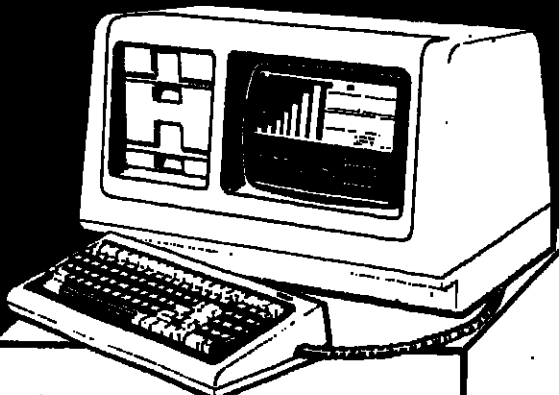
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MacLEAN... "Centre of gravity has moved North."

Chris Youett talks to some more of the exhibitors at next week's big show

'Compec North is where we expect data comms buyers'

TIMEPLEX, a data communications equipment specialist, will be showing its E-series self-contained data concentrator and its switching multiplexers, as well as the Nokia range of CCITT compliant leased line/public switched telephone network modems at Compec North.

Also on show will be the series of intelligent single card CCITT 2,400, 4,800 and 9,600 bits per second leased line modems.

CASE is in the communications business, too, and Christine Stott said: "Business over the last year has increased and we have opened a Manchester office. We also saw people at Compec North last year, we didn't see in London. Our first sale of the error correcting modem was made in the North to the motor industry."

South Wales-based Data Type Terminals, which recently ob-

tained extra capital from Citi-Corp's new technology development fund, is emphasising its low-cost graphics terminals and its DEC LSI 11/23 based minicomputers which have recently been enhanced with Honeywell D160 120 Mbyte disc drives.

They run under standard DEC operating systems R111, RSX11M, RMS11K, RSTS, TSX Plus as well as Bell Labs' Unix. Applications can be programmed in Ansi 74 Cobol, Fortran IV, Basic and Basic+2.

Chairman Gerry Tuffs said: "Obviously, Olympia is a major show which you cannot afford to miss and the name means success. Last year at Compec North we closed an order for over 100 units."

"We found it a successful show, so we are back again this year. There has been too much emphasis on the South."

"We expect it to be successful this year," Tuffs added.

The computer side of glass giant Pilkington will be exhibiting its line drivers and multiplexers which can operate on RS232C, synchronous or asynchronous interfaces at speeds up to 9,600 Kbits per second.

The kit can also operate over fibre optic cables such as the Mercury project, and Pilkington PE's John Ashall said: "Because we are

as a gathering for OEMs and the educational market. Midletron of Belper, Derbyshire, will be showing a range of DEC LSI products, televideo kit, customised terminals, VT100s and data concentrators.

Midletron's Eric Pugh said: "We hope to have a Cambridge Ring system working at the exhibition and our concentrator can handle up to 16 terminals on one ring station."

"Our main interests are in OEM and education and Compec North seems to be a gathering for OEMs. It is the right marketplace for us," he added.

Northern Datacom is using Compec North to launch itself on to the communications market. Kevin Hayes, for the nine-month-old firm, said: "Our equipment is divided into three categories: a range of protocol converters which can have from single to eight channels with the largest supporting more than one protocol; a range of statistical multiplexers made in Champagne, Illinois; low-cost terminal patching systems, acoustic couplers and low-speed modems made by Bootstrap in Ireland."

"Compec North is the first time Northern Datacom has exhibited anywhere. One of the reasons we are going is that as we are North based, and it is logical to sell to people locally. It is also a way of launching the company," Hayes added.

Zygal Dynamics at Bicester is hoping Compec North will be a repeat of the Olympia show. Managing director John MacLean said: "We will be showing the DEC VT180 personal computer, the Fujitsu SP830 80 chips daisywheel printer and we have been promised a GE 3000 Series matrix printer which prints letter quality documents at 100 chips and draft quality at 300 chips."

"We have expanded our software and its centre of gravity is moving North, so we have support it by going to local exhibitions."

"Compec at Olympia has always been good for us, so we are happy that Compec North will do likewise," MacLean added.

Kode of Caine, Wilts is another firm which will support its site office at Manchester via Compec North. It will be showing matrix printers, 300 lpm solid font printers, communications kit and Winchester disc drive back-ups.

Shop window on North

From Page 25

government have yet to fulfill the promises of the campaign trail, the revitalisation of British Telecom seems to be one of the shining stars in the move to make nationalised industries more competitive.

BT has been making a steady stream of product announcements in the past few months, and has made clear its intention to participate fully in the development of office automation systems. It is featuring at Compec North its new Regent Call Connect System, which uses solid state technology with stored programs under microprocessor control.

Communications is an area that will be well represented at Compec North, with companies like Master Systems, Able Computer, Racal-Milgo, Northern Datacom, and others displaying their products to the local market.

In the Chancellor's last Budget, high technology was given a £130 million boost in what Sir Geoffrey Howe called an "innovation package". The government made clear that it intended to switch resources from the lame-duck heavy engi-

neering industries to service-oriented investment in new technology.

But the North must make sure it gets a fair share of the government incentives.

In the Commons a few weeks ago, the new Under Secretary for Industry, John Birt, said it was up to individual companies to put forward projects for support. He was referring to the Microprocessor Applications Programme, a training and awareness programme with a three-year £55 million budget which has now been extended.

Butcher gave a regional breakdown of figures for offers of grants for feasibility studies and development projects. They showed that in 1981-1982 there were 41 offers in the North-west, 108 in the North-east, 128 in Yorkshire and Humberside, and 370 in the South-east. The difference was implicit, and the difference was implicit, and the difference was implicit.

Manchester hopes to show further vigour in the industry which has the greatest hope of enabling the North to retain its importance in the economy of the country.

Science parks bring hi-tech industry to depressed region

Sarah Hardcastle looks at an American idea that's catching on in the UK

WITH closures and job losses continuing to mount throughout the North-west, one of the region's new rays of hope has been its science parks. These have proved a highly successful enterprise, attracting new, mainly high technology industry to a largely depressed area.

Science parks are an import from the US, where they began as industrial complexes built on or nearby university campuses providing an environment for the exchange of ideas between high technology companies and academics. In crossing the Atlantic, the concept has been modified. With a few notable exceptions, the seven or so science parks built in the UK have not set out to be

lured by the incentives offered by Warrington, computer companies have been keen to settle in the science parks and their surrounding developments.

One of the first was Data General which has sited its European training centre for field engineers in Birchwood. Engineers from all over Europe spend four to 12 weeks a year on either initial training or refresher courses at the company's 60,000 sq ft building.

According to Data General, Warrington was chosen because it proved the most economic following evaluation of other sites in Europe.

Similarly, Digital Equipment has located its regional headquarters in Birchwood from which it handles customer training, and sales and field services for the North and North-west. A "green field" site with capacity for growth over the next 10 years are DEC's reasons for its choice.

A feature of American science parks is an "innovation centre" providing office or laboratory space for fledgling companies with an idea they want to turn into a business. Warrington's Genesis Unit was conceived in this mould, but like so many ideas crossing the Atlantic the reality is different. It has turned into multi-let office and light industrial accommodation for conventional small business.

Genesis has been designed with the needs of the small computer company in mind: strengthened floors and special ventilation are available and interior walls can easily be re-positioned to accommodate expansion or changing requirements.

Warrington will provide assistance with room layout, professional back-up services, and will also include furnishings and partitioning in the rental.

Four computer companies have settled in Genesis. Among them is Data Terminals and Communications, a Californian manufacturer of eight-bit micro and terminals, which has sited its UK sales and repair operation there.

DTC moved into Genesis last July from premises in Manchester. The company had originally chosen the North for its UK headquarters because its US management had personal ties with the region and through a distributor it had established a growing market outside the South-east.

Genesis was its choice because "Warrington offered us such a good deal on rent, services and building design," says Rod Geeson, DTC's general manager.

DTC has 2,000 sq ft of Genesis - mainly office space - and employs nine people. As well as running its marketing and servicing its products, the subsidiary also does software development and is presently working on a fifth operating system for the European market.

DTC imports its products from the US for the UK market, but by the middle of next year Geeson anticipates that an assembly operation will have been established in Warrington. For this reason he is thankful for the ready pool of labour in the region.

Like other Warrington settlers, Geeson is enthusiastic about the excellence of international communications to and from the area. "With Manchester Airport nearby it means products can be air-freighted directly from California faster than they could through Heathrow. California to our doorstep via Manchester Airport takes four days," says Geeson.

Though DTC's Warrington operation is not research-based, which would make it a logical candidate for establishing close contacts with the area's academic

institutions, the company is one of the few in the science park to have links with a polytechnic.

"We have one person on secondment from North Staffs polytechnic developing application software which I hope will be an on-going relationship. I also do work with the students in the polytechnic," explains Geeson. This initiative, however, stems less from a desire to put the science park concept into practice than from a fact that Geeson used to lecture at the polytechnic.

Though it is not within the science parks, the Grange industrial estate has been built along similar lines with equally attractive facilities and landscaping. The UK manufacturing subsidiary of Gandalf Data Communications, a Canadian company specialising in modems and multiplexers, moved into new premises in Grange last December.

Its purpose-built accommodation comprises 7,000 sq ft of offices and 15,500 sq ft of production and support facilities completed in February. Additional office and production accommodation is planned for the near future.

At Grange, Gandalf manufactures the company's full range of products and runs a complete marketing and technical support operation. It is soon to open a development facility, principally working on data communications software.

"Our chairman chose Warrington originally because of its location and the help given by the development corporation," says Mike Glover, managing director of the UK subsidiary. "Warrington is one of the more active New Town organisations and they have been very helpful in assisting us in choosing our new site and in its design and construction."



DTC's Geeson at work on Warrington's Genesis Unit.

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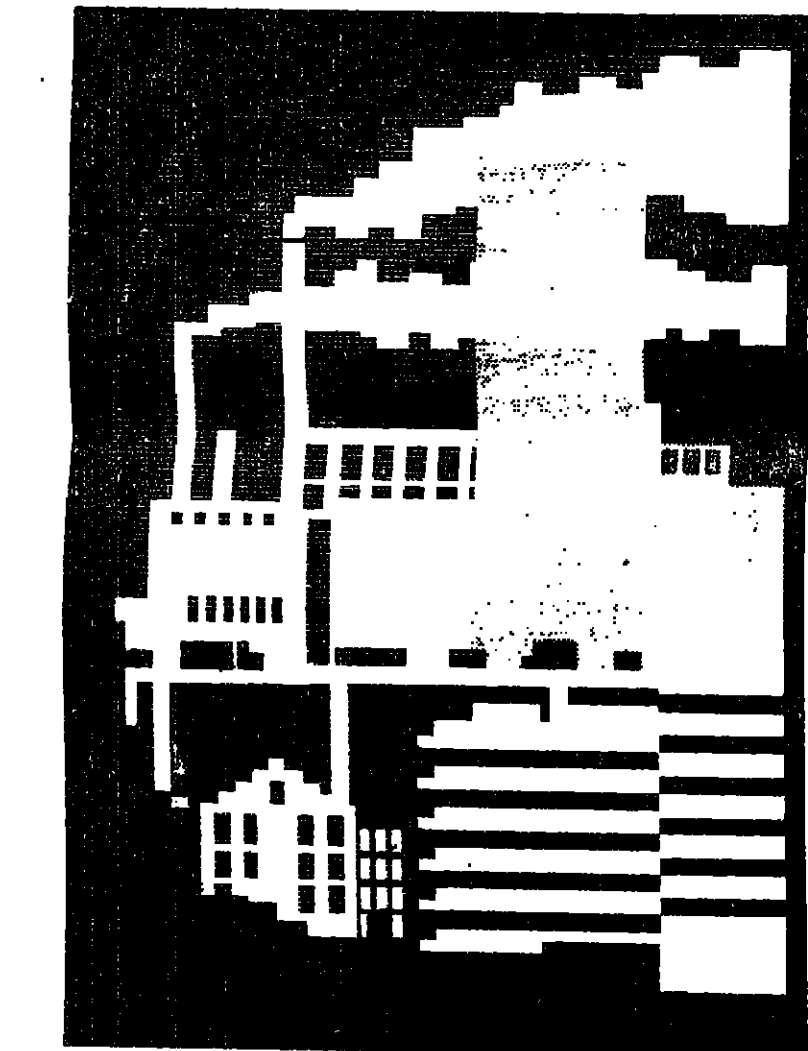
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background.

Analysts various Systems

UNIVAC 1100 COBOL some with DMS

UNIVAC 1100 Fortran

UNIVAC 90/30 OS RPG 11

UNIVAC 90 IMS COBOL

IBM Adabas Analysts/Programmers

IBM, OS COBOL

IBM, COBOL, CICS & DL1

IBM PL1 Various requirements

IBM 8100, DPPX, DPCX, COBOL

IBM SYSTEM 34, RPG 11 & DMS or

MAAPICS

IBM COBOL, CICS & QPAC

IBM CICS (DMS)

IBM IMS DB/DC PROGRAMMER

SYSTEMS DESIGNERS

IBM CICS COBOL

IBM CICS, VTAM, COBOL/ASSEMBLER

IBM MARK IV

IBM UFO Expertise

IBM PL1, SHADOW

IBM System Programmers

IBM MVS COBOL SHADOW IDMS

IBM Assembler on-line DATABASE &

TASK MASTER

IBM SYSTEM 38 RPG 111

IBM PL1 to COBOL CONVERSION expertise

HONEYWELL Level 6 COBOL SCREEN WRITE

HONEYWELL DPS4, IPS, COBOL

HONEYWELL DPS8 COBOL

PROGRAMMERS

ICL Applications Manager

ICL ME29 COBOL

ICL Range COBOL

ICL SYSTEM 10 ASSEMBLER

ICL SYSTEM 25 ASSEMBLER

PDP RSTS/E BASIC + or BASIC + 2 some

with DATABOSS

PDP RSX11M BASIC + 2

VAX SYSTEL
VAX COBOL
HP3000 COBOL
WANG COBOL or BASIC
FORTRAN PROGRAMMERS
PASCAL PROGRAMMERS
TANDEM any levels (URGENT)
CORAL 86

VENTEK DATAPoint, DATABUS

DG INFOS, COBOL

INTEL PLM Programmers

INTEL 8086 ASSEMBLER

Hardware Engineers - Electronics

TI COBOL PROGS

CMC REALITY DATABASIC

Contact: STEVE WHITING, NEIL SMITH,

STEVE CASEY, DEREK WADHAM

DAVE PEART, DAVE

LONKHURST, KEITH TAYLOR, PETER

HOLLIDAY, MARK ATKINSON or

SANDRA CAREY

URGENT

ICL COBOL VMEB
SOME WITH IDMS or
TPMS

40 REQUIREMENTS

ASAP

URGENT

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plication.
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IBM MVS/JES 2
Burroughs 67/6800 MCP
ICL 2904 Exec.
ICL George 2+/George 3
Contact: ALAN PAINE

MIDLANDS & NORTH 021-742 4431

ICL VMEB COBOL IDMS or TPMS All

Levels

IBM, PL1 All Levels

IBM CICS DL1 COBOL

IBM COBOL with IMS

HONEYWELL GCOS COBOL

UNIVAC 1100 COBOL

IDMS DATABASE Administrator

Analysts Various Systems

PDP RSX11/M BASIC + or BASIC + 2

PDP/RSTS/E BASIC +

FORTRAN PROGRAMMERS

URGENT

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ground ASAP
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RTL 2 Programmers

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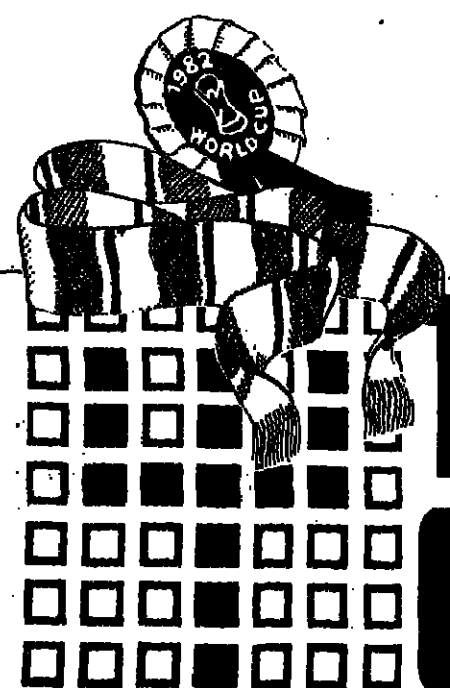
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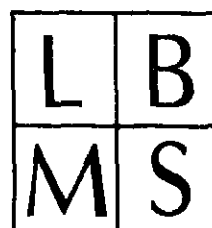
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The Corporation has personnel resources of over 15,000 employees located in well over 100 offices worldwide and also owns its own remote processing service INFONET.

Computer Sciences Company (UK) is a well established British company and since its foundation in 1969, has undertaken many major projects. Recent and current projects include strategic defence command and control systems for both the Royal Navy and the Royal Air Force and a major computer/communications system for another large government department. Recent company re-organisation has placed increased emphasis on marketing the corporate services and capabilities and, therefore, CSC (UK) urgently seek the very best d.p. professionals to work on current projects and to provide a multi-discipline resource to meet imminent new projects. Main areas of interest are in the following categories.

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Naturally, it is impossible to be specific about individual experience, but, for example, Honeywell L64 designers will be of particular interest. Further, the emphasis is more on 'total' systems background rather than specific applications.

CSC are most interested to hear from Programmers with *not less* than three years experience of the more up-to-date environments of d.p. where modern, state-of-the-art equipment and techniques are being used.

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1911

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This belies the image of North-west England as a region looking backwards to the Industrial Revolution. On the contrary, the region has built on its industrial heritage and its ability to adapt, to remain at the forefront of technological change.

In 1978, the latest year for which accurate figures are available, 6,600 people were employed in the production of computers and computer peripherals in the area covered by the North-west Industrial Development Association (NORWIDA), ie the counties of Cheshire, Cumbria, Greater Manchester, Lancashire, Merseyside and the High Peak district of Derbyshire, while the electrical engineering sector as a whole employed almost 98,000 people. Many are employed by the large companies of Ferranti, GEC, Mullard, Plessey and ICL, each of which has a substantial presence in the region.

Other companies include old-established firms such as Salford Electrical Instruments and newcomers ranging from the Marconi Space and Defence Systems plant at Necton in the Wirral producing computer-controlled missiles, to a myriad of small companies located throughout the region.

'North-west has remained at the forefront of technological change'

William Kinson reports on a region that has built on its industrial heritage

Most recently Direct UK, an associate company of Direct Inc based in California, opened a factory in Warrington New Town to distribute and eventually manufacture a range of video display terminals for the European market.

One particularly interesting development has been the setting up of a robotics plant by Danichi-Sykes at Bamber Bridge, a joint venture between a Japanese and a Huddersfield-based company. Indeed, the attraction of overseas electronics companies is a valuable complement to the growth of the region's indigenous electronics industry.

Why should the North-west prove to be an attractive location for new and expanding electronics companies? Undoubtedly, financial incentives in the form of regional development grants and regional selective assistance have a role to play. A number of companies have received substantial sums of money.

In addition, there are now several schemes to make it easier for new and small companies to obtain venture capital for innovative or high technology projects.

Anglo-American Venture Management, based in Manchester and linked with the British Technology Group has been particularly active in the area, having enabled Positron Computers, of St

Helens to expand from a start-up in 1979.

Companies in North-west England are also eligible for assistance under the Microprocessor Applications Project, and Microelectronics Industry Support Programme, the Product and Process Development Scheme and the Software Products Scheme, each of which will be unaffected by changes in the assisted area which take effect in August.

Already, since its inception in 1978, 411 offers of grants for feasibility and development projects under the MAP have been made to North-west companies, the highest number to any region outside the South-east, revealing their readiness to adapt and take advantage of new technology.

Perhaps of greater importance, however, is the outstanding concentration of support resources for high technology industries in North-west England. The National Computing Centre, established in Manchester in 1966, provides a number of services to industry, such as advice and

training, as well as supplying software packages. The nine major institutions of higher education in the region - the universities of Lancaster, Liverpool, Manchester and Salford, the polytechnics of Liverpool, Manchester and Preston, the University of Manchester Institute of Science and Technology and the Manchester Business School - now offer co-operation with industry over a wide field of training and in research testing and consultancy.

These institutions also make a significant contribution to the quality of the region's workforce. Together they produce a combined qualified output of about 6,000 annually in science, engineering and technology.

Another feature of North-west England's back-up facilities for high technology industries has been the setting up of a number of science parks, the UK's first commercial science park having been established by Warrington Development Corporation at Birchwood.

Science parks can now be found at Upton in the Wirral and at Salford, close to the university, while others are planned for Manchester and Warrington.

Among the companies which have already been attracted are Digital Equipment and Control Data at Warrington which, in addition to the provision of suitable premises in an attractive environment, benefit from the region's excellent motorway network.

This is further complemented by proximity to Manchester International Airport which currently handles five million passengers a year and £1½ million worth of freight each day, making it the country's principal regional airport.

In spite of its willingness to adapt, North-west England has not been immune from the effects of the recession. In the area covered by

NORWIDA, unemployment in April stood at 455,501 or 19% of the working population compared with 12.6% for the UK as a whole.

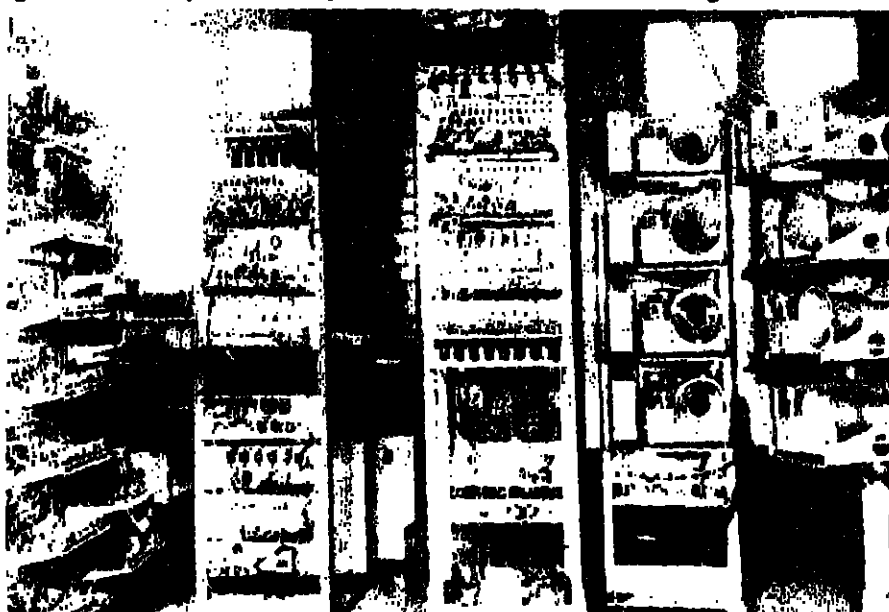
And in the first five months of 1982 the North-west experienced 22,201 redundancies, although this figure for the same period last year when there were 35,431 redundancies, is a reflection perhaps that the worst of the recession is over.

Yet while employment in manufacturing has declined a trend which has accelerated over recent years, a number of sectors, not related to the high technology industries, continue to expand. In addition, microelectronics has a wide range of applications, from the nuclear power industry and the manufacture of gas equipment, particularly in relation to the development of the Morecambe Bay Gas Field.

Naturally, these are exceptions, the closure of plants in Manchester and Winsford being, for example, although the Winsford plant has been occupied by the Peripherals.

But the prospects for electronics industry in North-west England are bright, and are enhanced by the growth of interest in information technology generally.

NORWIDA provides information and guidance to companies from all parts of the world wishing to establish production capacity in the region. For further information contact: North-West Industrial Development Association, Bracken House, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



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BNOC

The British National Oil Corporation

COMPEC NORTH RECRUITMENT

Ferranti — geared to beat the recession by boosting sales

Eugene Dempsey finds business booming for one manufacturer

DESPITE the universal problems thrown up — or, more precisely, emphasised — by the long-drawn-out recession, Ferranti has demonstrated that it is geared to beat such difficulties in the best possible manner: by outperforming sales targets for its broad spectrum of computer systems.

Already off the ground in the new financial year with "business looking good", Ferranti has been among the North's primary computer job providers with currently about 500 graduate staff spread mainly across the system designers-software-hardware board.

Despite the inevitable effects of government spending cuts which have touched its more traditional "bespoke tailored" systems, Ferranti has pursued a policy of calculated diversification which has seen a fairly rapid evolution, rather than a revolution. This enabled the company successfully to market and sell an increasingly wide range of "standard" systems, which now represent some 40% of total sales volume. Thus, while the much bigger bespoke systems still represent the biggest chunk of Ferranti's activity, its line-up of blue-chip users such as Shell, BP and ICI is now being joined

by a host of users, down to office managers, who are adopting the new systems.

Recruiting an adequate number of first-class systems designers and other professional staff has proved difficult for Ferranti compared with even two years ago, but with a salary spectrum spanning the £7,500-£12,000 range for senior grades it feels that other incentives are not appropriate.

"In addition to this attractive salary scale," said a spokesman, "job candidates should value the fact that Ferranti is a pretty stable employer, a point underlined when a recent issue of shares to employees was significantly oversubscribed."

Asserting that the company had "never recruited for the sake of it," he said that the economic situation had "sharpened our edges" without inhibiting any decisions to spend money when necessary.

In common with other major computer manufacturers, Ferranti has always been willing to use job recruitment agencies and consultants in its search for high calibre staff, and the spokesman was particularly impressed by those concerns which went considerably further than merely recommending and sending along for interview prospective job fillers.

"The better organisations now do a careful sifting operation," he said.

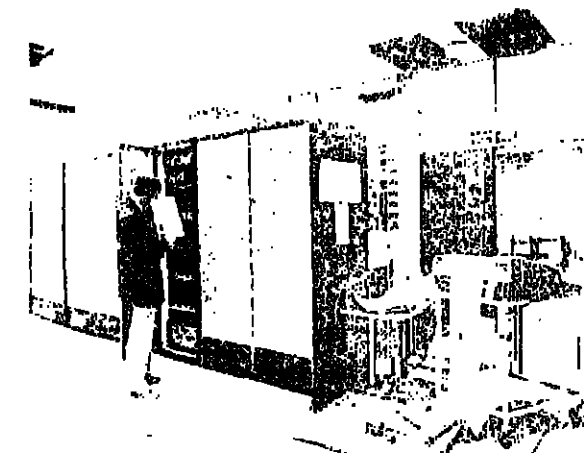
For anyone in the North looking for a computer job, it is obvious that Ferranti presents an attractive proposition, especially via the recent expansion into more standard products which sell on the facilities they offer rather than merely on such traditionally considered parameters as speed, rise/fall time, cycle time etc.

Thus, a highly successful market recently has been the sale of intelligent terminals emulating IBM and ICL units. One example is the FT7, which provides the village bank branch with the facilities of the mainframe machine via on-the-spot programming facilities.

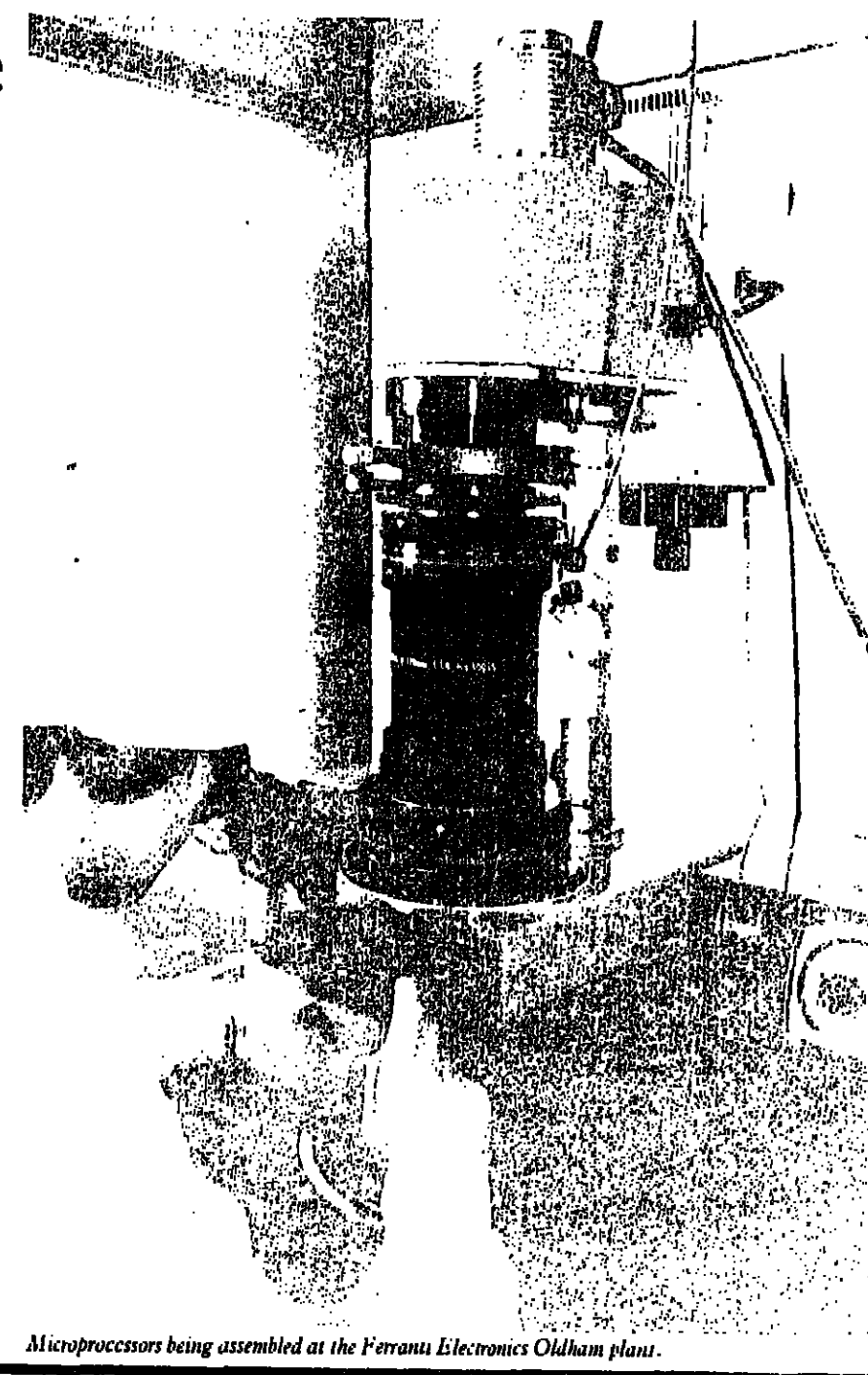
Introduced only last September but already proving increasingly popular is Ferranti's Telex Manager System, a store-and-forward system with in-built message switching capability.

Another major recent development is a composing system for newspapers and magazines which has already borne out Ferranti's policy of adopting the rule of selling problems, and not merely equipment.

Ferranti predicts with confidence that it will maintain a 2% yearly growth in professional staff recruitment in the foreseeable future.



Engineer inspects a PCB on an Argus 700E at British Telecom — a large Ferranti user.



Microprocessors being assembled at the Ferranti Electronics Oldham plant.

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COMPEC NORTH RECRUITMENT

Eugene Dempsey spoke to people who have relocated to the North . . . and found that they are much better off

Leaving 'bright lights' for cheaper housing and friendlier neighbours

JACK CHRISTIE starts a new job next month as a systems analyst with the National Giro Bank at Bootle on Merseyside - and he's a happy man. After years in the heart of Southern suburbia at Croydon, he is uprooting and heading North with the comment: "I'd swap where I'm going for the bright lights of London any time."

Christie, who has spent part of his career as a data processing manager but more recently has been a lecturer, has taken a key job at the Giro centre which, he

enthusiastically points out, will bring major benefits in housing, cost of living, environmental advantages, and - not least - to join a community which he believes typifies the open friendliness of Northern folk in contrast to the Croydon experience where such spontaneous camaraderie is not common.

Housing is one of the major contrast points between South and North. Christie, for instance, has sold his three-bedroom terrace house in Croydon for £35,000, and bought himself

a three-bedroom "immaculate" semi-detached home at Ormskirk in a farming community for £28,500, including a "beautiful" garden.

"I could have dropped the price a couple of thousand if I'd really been anxious to do so, but the big price differential does enable one to go for the house one likes," he says.

When he starts at Bootle, Christie will have a ten-minute journey each way, whereas down South a 12-hour day includes a lot of commuting time which adds

hours to the working day. Relating this to pay levels, he says: "Generally it is true that salaries are somewhat down compared with Southern rates, but if you take into account the recovered 'lost' commuting time and the cost (around £400 pa, and £1,000 pa in the case of one of my Southern colleagues) then parity is not far away."

The environmental and personal advantages of working "up North" are pinpointed clearly by him: "When I'm installed in my new home, I'll be an hour

away from the Lake District and the Yorkshire Dales are virtually on the doorstep, as is the Lancashire coastal resorts region.

"Furthermore, when we were house-hunting in Ormskirk one couple whose home we were viewing one evening offered to put us up overnight without any prejudice; while another couple, next door to a house we had hoped to see but found inaccessible at the time, took us around their house (accompanied by cups of tea) because 'it's basically the same as the one you'd hoped to inspect'. Down South, it is difficult even to get to know people living around you."

Andrew Lucas, marketing manager of Davy Computing in Sheffield, echoes many of Jack Christie's comments. "This is a nice place to live, on a hill and in dog-walking distance of the moors and open country. Contrast this with our previous location, Hounslow, where if you stuck your nose out of the office a Jumbo jet would land on your head!"

On commuting time and cost, too, his views endorse Christie's comments. It is not unusual when working in London, says Lucas, to lose between two and four hours each day travelling to and from work, with an annual £400-£500 travelling cost, compared with his present situation in which a



LUCAS... Working in the North cuts commuting time.

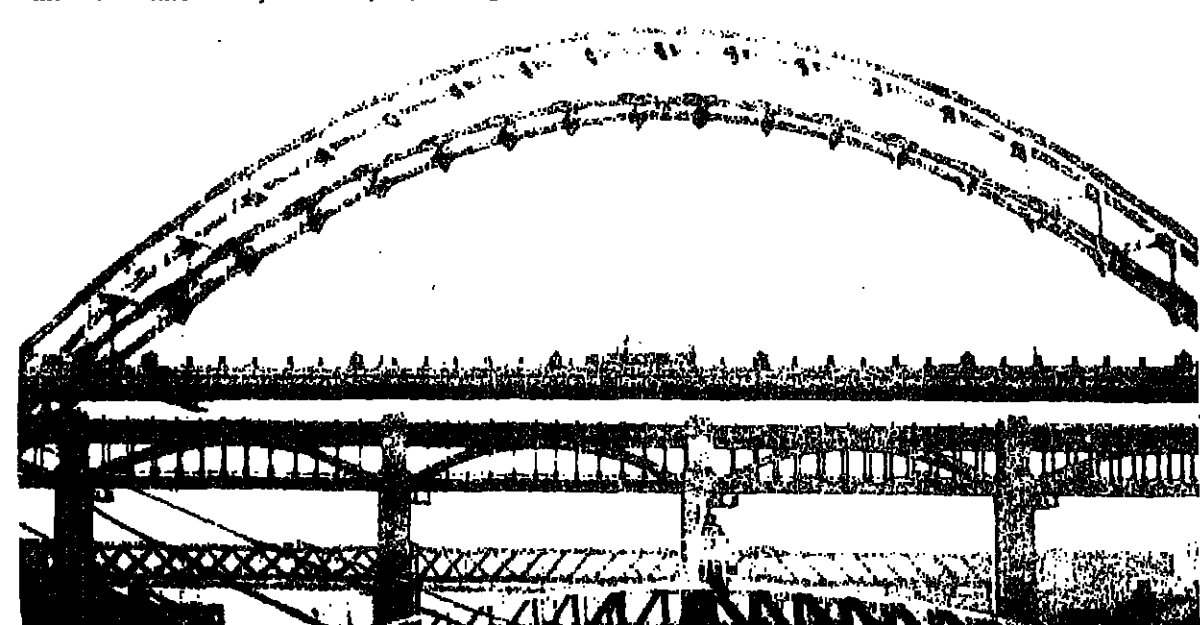
short bus-ride ("costing 5p or 6p - we actually use coppers") gets him from home to the office.

In terms of communications, Lucas takes the high speed (125 mph) Inter-City train from Doncaster to the centre of London weekly and the journey takes only two hours. Another Northern convert working with him points out that the Sheffield-Heathrow car trip takes no longer than Maidstone-Heathrow via the centre of London.

"My wife, who's from Essex, already loves it here after only three or four

months, and for me the pace of life in the North is rather a lot of money. There is a better level of living for the same money compared with the South, and it's a nice place to live," says Lucas.

Finally, on the question of relative entertainment tractions, he is in no doubt. "Tell me how many people working in the centre of London actually go to the theatre or similar nights in a year. We have the Gaiety Theatre here in Sheffield - and, anyway, as a full lot can be achieved by taking a 'weekend away' from London from here."



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COMPEC NORTH RECRUITMENT

Over £200 million has been invested in the computer industry in Scotland in two years . . . Chris Youett reports

IN the past two years over £200 million has been invested in the computer industry in Scotland. This represents capital equipment, systems, buildings and therefore jobs.

The Scottish Development Agency (SDA) has estimated this investment alone accounts for over 6,000 new jobs and, while many manual jobs can be filled locally, there is still a need for DP professionals not only in the computer industry but also in manufacturing and commerce to bring in the benefits of technology.

Historically, the prosperity of Scotland was based on coal, shipbuilding, distilling and weaving. The first two have declined considerably, causing what social commentators call "structural unemployment".

Although the oil industry has created some jobs, there has been a largely unpublicised growth in computers and electronics over the past 20 years.

Honeywell, which has just announced a £1.3 million expansion of its research and development side at Newhouse in Lanarkshire, is now producing DP equipment North of the Border for over 30 years.

There are now over 200 firms employing more than 38,000 people in electronics alone in Scotland, with over 20% in white collar grades. Scotland has the heaviest concentration of PCB manufacturers and subcontractors in Western Europe.

Among the household names in the DP industry which have operations there are IBM, ICL, Burroughs, Hewlett-Packard, Honeywell, Ferranti, MFE, Nippon Electric (NEC), DEC, National Semiconductor and Motorola.

Motorola has a plant at East Kilbride which it claims beats the rest of Motorola's factories in the productivity league.

Most employers are situated in the Central Lowlands, where the

DP companies create 6,000 new jobs North of Border

population is concentrated. This includes both the new towns and the older industrial centres.

Naturally, firms based in the North-east tend to be biased towards the oil industry, and this is reflected in the goods and services they supply.

When it comes to educational facilities, there are 38 technical colleges which offer full and part-time courses in DP related subjects, and produce over 4,000 qualified students a year.

The UK's first microelectronics training centre was established at Paisley College of Technology. It provides not only courses, but helps to monitor new micro developments too.

The area also has more university places per head of population than most European countries. One adult in eight is receiving some form of further education or training, according to SDA figures.

New chairs in microelectronics have been established at several universities while six more Honours courses and three Masters courses in computer science and related subjects have been introduced.

Further job opportunities can be expected from developments made at Heriot-Watt University's research park and the science park set up by Glasgow and Strathclyde Universities, the SDA and Glasgow District Council.

Of course, you may be fed up with working for a salary and decide to go out on your own. There are a number of financial assistance schemes available.



TESTING one of the new 4-inch wafers in part of Motorola's most advanced microcomputer and memory production facility at East Kilbride, Scotland.

These include the microelectronics industry support programme (Misp), the software products scheme, the microprocessor application project (Map), the product and process development scheme, the research and development requirements boards,

regional development grants, selective financial assistance, in-plant training awards, rate-free sites in the Clydebank Enterprise Zone and the European Investment Bank Loans.

The European Investment Bank provides fixed interest medium-term loans to firms in Scotland investing in ventures which provide for additional, or safeguard existing, jobs. The loans are for up to 50% of fixed asset cost.

involved in modernisation programmes or job-creating investment.

Regional development grants are available for firms investing in Scotland's assisted areas and cover buildings, plant and equipment.

Selective Financial Assistance provides for grants for major investment projects in manufacturing industry involving over £500,000 and are usually worth about 10% of project costs.

The software products scheme is to provide aid to software houses, bureaux or consultancies towards the cost of developing new products or packages and of marketing the products in the first year of sale.

Research and development boards provide aid to develop commercial products and processes aimed at harnessing new technology. There is a similar scheme for developing industrial robots.

Over 15,000 acres of land have been allocated for industrial use in development areas with sizes ranging from half an acre upwards. The SDA also provides resources here, with up to 36 million square feet of floor space in over 700 factories at 200 locations. These can be rented or sold.

With a budget of over £100 million a year, the SDA also operates a new ventures unit which was set up to help get businesses off the ground and with a special bias towards new technology.

Scotland also has good communications links, with direct flights to most major cities in the UK and Europe, a motorway network and high speed trains from Euston to Glasgow and Kings Cross to Edinburgh. When the APT has been debugged, this will cut at least 30 minutes off the journey time.

Of course, you can always stick with spending 80% of your time maintaining systems that are documented badly and rarely seeing an application fully completed.

Senior Systems Analysts circa £9.5k Systems Analysts circa £8k Programmers circa £8.5k

Rolls-Royce Motors, based in South Cheshire is continuing its development of computer systems. These developments include engineering and materials management systems, quality control, manufacturing history as well as varied financial applications. All these projects utilise the facilities of an IBM 4341, DOS/VSE with CICS and IDMS.

Systems Analysts are required at two levels. The Senior Analysts should have relevant experience in one or more of the above project areas and must have worked on a project from feasibility through to implementation. For the less senior positions candidates must have a sound training with at least two years solid analysis experience. At both levels applications experience is more relevant than a particular hardware background.

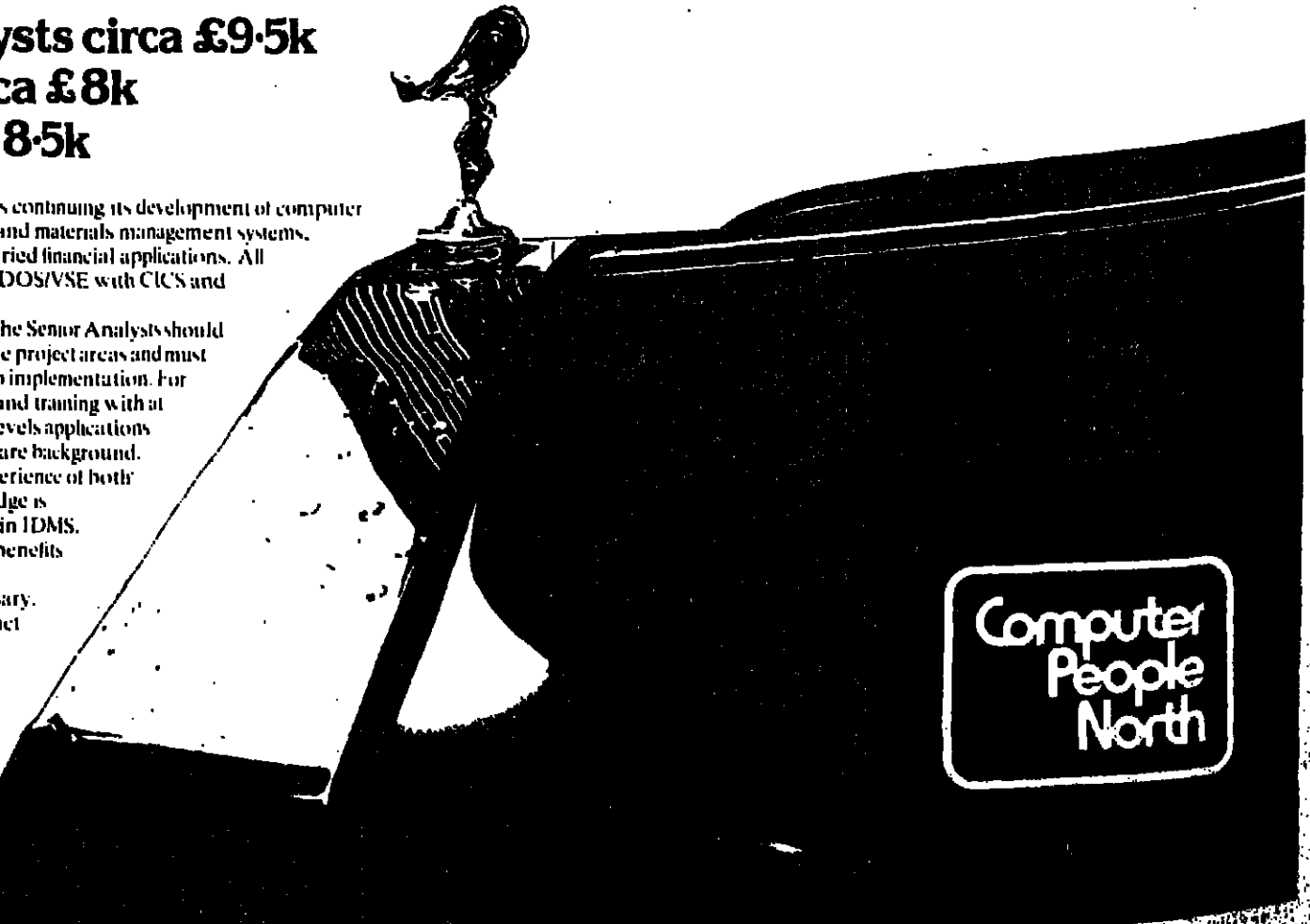
Programmers with a minimum two years experience of both PL/I and CICS are also needed. Database knowledge is desirable but not essential as training will be given in IDMS.

Successful candidates will be rewarded with benefits befitting this most prestigious company, including generous relocation where necessary.

For an immediate interview contact Graham Pepper on 061-491 1666 (during office hours) or Adlington (0257) 480291 (eves/weds). Computer People North, Sovereign House, Stockport Road, Cheshire SK82EA.



Rolls-Royce Motors



COMPEC NORTH RECRUITMENT

COMPUTING IN THE NORTHERN IRELAND CIVIL SERVICE

SYSTEMS ANALYSTS AND PROGRAMMER/ANALYSTS £6,521-£9,788 plus allowances (within max. of scale)

Vacancies exist in the above grades in both the Departments of Health and Social Services (DHSS) and Finance and Personnel (DFP).

DHSS

The posts are in such areas as hospital medical care, nursing, stores, pharmacy management, administration, finance, personnel and payroll.

DFP

The posts are in a wide range of projects from payroll to Social Security payments system, in scientific and technical support and in an advisory capacity for public service computing. Applicants must not be more than 55 years of age on the closing date (ie, born on or after 8th July, 1927), and possess:

SYSTEMS ANALYSTS (£7,822-£9,788): Either a minimum of 5 years' relevant computing experience or at least 4 years' post graduate relevant experience plus a degree, HND or equivalent qualification in computer science or other allied discipline with computing as a main subject. Candidates' experience must include a substantial period in systems design.

PROGRAMMER ANALYSTS (£6,521-£8,314): Either a minimum of 3 years' relevant computing experience or at least 2 years' post graduate relevant experience plus qualification as above. Experience of ICL 1800/2200 series computers (including PLAN, CIBOL, FORTRAN, GEORGE, VME, DDS, IDMS) or mini computers (including DEC, CMC, CTI) or communications would be an advantage.

The Civil Service Commissioners may decide to interview only those applicants who appear from the information available to be best qualified.

Grading and starting salary will be related to qualifications and experience. Systems Analysts are paid an allowance of £818 per annum (within scale maximum) after 2 years satisfactory service. Programmer Analysts are paid an allowance of £783 per annum (within scale maximum) after one year's satisfactory service.

The appointments offer the following benefits:

1. Career Prospects - the highest systems post command salaries of up to approximately £18,000 per annum.
2. Systems Analysts and Programmer Analysts are entitled to at least 22 days leave per annum in addition to public holidays.
3. Non-contributory pension scheme apart from a deduction of 1% towards provisions of widow's pension in the case of male officers.
4. Flexible working hours may be worked at certain locations.
5. Opportunities to broaden experience in a wide range of application areas.
6. Training and retraining as necessary.

Informal enquiries may be made by telephone to the Department of Finance and Personnel (telephone Belfast 760761, extension 2708), or the Department of Health and Social Services (telephone Belfast 44377, extension 251 or Belfast 30555, extension 220).

For further information concerning the posts and an application form, please write or telephone (quoting job reference 88 7282W) to the Civil Service Commission, Rosepark House, Upper Newtownards Road, Belfast BT4 3NR (telephone Dundee 4585, ext. 3151). Completed forms must be returned to arrive not later than 8th July, 1982.

NORTHERN IRELAND CIVIL SERVICE

GROUP INFORMATION SERVICES MANAGER

Stewart & Son of Dundee Limited, blenders and bottlers of Scotch Whisky, invite applications for the above position.

The successful candidate will provide a service on systems administration and development and assist in the selection and operation of appropriate computer hardware and software systems. He/she will also provide a general service on systems administration covering all aspects of administration accounting and security.

An NCR 8250 computer system is in use with a department of three personnel.

An attractive salary is offered with fringe benefits including a contributory pension scheme. The company will assist towards re-location expenses where necessary. Holidays honoured.

Apply in writing with full personal and career details to Mr. M. J. Beattie, Chief Accountant, Stewart & Son of Dundee Limited, Stewart House, Kingsway East, Dundee, DD4 7RE.

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We can offer you a lively environment, give a significant training input and a salary package between £9000 and £11500 for the right person. This will include regular reviews and excellent benefits (including relocation allowance where necessary).

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Coventry

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Generous removal and relocation scheme in appropriate cases including lodgings and travelling allowances.

Closing date July 6, 1982, quoting post Number 435.

Canvassing will disqualify.

For an application form, job description, please write to The Personnel Section, Treasurer's Department, Civic Offices, Riverside, Stafford, ST16 3AQ, enclosing a first-class stamp.

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FREEPOST **WIRRAL MERSEYSIDE** L83 8AB Telephone 051-688 8388



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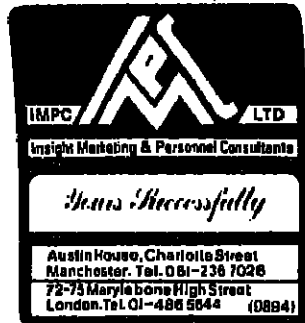
The suitable candidate will have had a minimum of three years programming and/or systems analysis experience in database and on-line applications, preferably in an IDS/IDS and DMJ/TP environment.

This is a permanent pensionable job open to men or women and located in Liverpool. A generous salary, fringe benefits (including bonus) and relocation package if necessary applies. Write to Nigel Williams, (Ref. 2006/06/GW), Management Appointments, Littlewoods, JM Centre, Old Hall Street, Liverpool X1 70 LAB.

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Tony Dutton reports on jobs for degree-holders

Local firms snap up computer graduates

GRADUATES with degrees in computer science or related subjects are in fairly high demand by local companies and local authorities in the North and North-east of England.

They stand a good chance of finding suitable employment in data processing - and their chances are doubled if they hold a degree in microelectronics and microprocessing, according to Durham and Newcastle Universities, both of which hold honours courses in these subjects.

John Clowes, of Newcastle University's computing laboratory, confirmed that those with degrees in microelectronics and microprocessors stood an excellent chance of being snapped up by large local organisations.

Companies involved in semiconductor and integrated circuit manufacturing, television, radio and consumer electronics, and control engineering and research establishments are especially interested in such graduates.

Many of the graduates in the past have also been recruited by the Scientific Civil Service.

These graduates are equally popular, he said, with local authorities who see the advantages of employing people with qualifications, providing the experience that can be applied to computer controlled instrumentation and engineering systems.

Their main areas of employment are in designing hardware interfaces - for example, traffic control systems. It is in the context of interface design that local divisions of the Gas Board seek out such graduates in the North and North-east universities.

Because of the geographical demand for data processing personnel most computer science degree graduates go South to find jobs - and are generally successful, added Clowes.

Whatever their choice of specialisation in data processing when they graduate, students at Newcastle University have first class facilities with the computing laboratory - which is naturally integrated through its course to those of associated departments.

The laboratory is unusual in that it combines the roles of a normal academic department with that of providing a general computing service for teaching and research in the rest of the university.

It has more than 60 graduate members of staff, and a collection of computers.

The main service is provided on an IBM 370/168, a large machine by normal standards for British universities. It runs an operating system called MTS - the Michigan terminal system, designed to make its use convenient from the 200 terminals spread over the university campus.

There are also minicomputers providing specialised facilities to particular groups of users, and numerous microcomputers to allow students to get some experience on small systems. The digital systems laboratory has a flexible breadboard system which enables experimental hardware to be assembled out of standard chips.

It is this kind of teaching facilities - a high standard of tutors and the belief that computers hold the key to the world's technological success - that are bringing

floods of school-leaving applicants to computer courses at the universities in the North and North-east.

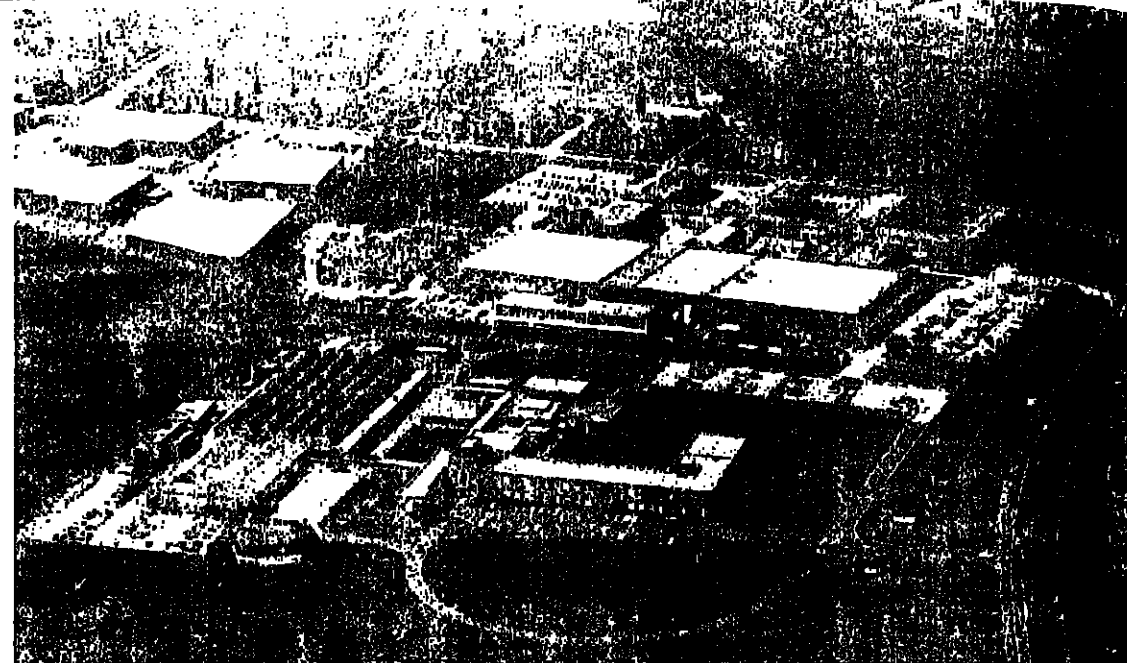
Sadly, the majority of these students are being turned away due to lack of places on the courses.

Andrew Slade, lecturer at Durham University's computer department said: "School-leavers - and many with as many as three A-levels - immediately apply for a place in our department on leaving school. Unfortunately because of this we are heavily over-subscribed and have to turn many away. We have only 16 to 20 places to offer to 150 competing applicants."

With increased use of microprocessors in instrumentation and control and engineering systems, graduates with knowledge and experience in both microelectronics and microprocessors are a valuable asset to an organisation, he stated.

Prospects for computer science graduates was as good, he said, as local organisations seeking just that kind of person to head up computer departments or simply to and maintain systems.

Although many of the companies are small by the standards of the other giant employers, local graduates offer great opportunities for university leavers to their first valuable work experience.



Aerial view of Ferranti's Northern headquarters, one of the giants employing local graduates.

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Due to continued success in their specialist field this dynamic young organisation is expanding and seek a further two individuals with the right qualities to contribute to their future plans.

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Because of the rapid expansion of the Company, new computer equipment will be installed later this year and the successful applicant will be responsible for ensuring a smooth transition from our present equipment. In addition, he or she will be required to control the flow of data through the Computer Room and will be involved in revising systems and writing programmes where applicable.

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Applications should be in writing and addressed to:
The Company Secretary
BIFPA LIMITED
Kilgusville, London Road
Lundwater, High Wycombe, Bucks (9823)

Royal Holloway College
(University of London)
Egham Hill
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COMPUTER SCIENCE

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INTERESTED? Then contact either David Coates (01-628 3691 Ext. 267), John Rankin (01-628 3691 Ext. 207) or Tim Thorne (Stewkley 052524 595 evenings), for an informal discussion. Alternatively, send a detailed c.v. with a covering letter to David Coates, Dun & Bradstreet Ltd., 6/8 Bonhill Street, London EC2A 4BU.

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APPLIED technology
Systems and Software Engineering

01-530 3186

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The Head of Recruitment (PERL/7),
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Initial interviews for such applicants may be conducted in London.

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PROGRAMMERS
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If you have several years' experience and are looking for a position which offers the challenge of implementing a new system, contact us NOW. Phone Chris Harvey on Oxford 64861 extension 462 during working hours or Kidlington 6165 evenings and weekends.

Or John Dunleavy on Oxford 64861 extension 523 during working hours or Abingdon 24833 evenings and weekends. Please quote reference no. V32/82.

Oxford Regional Health Authority

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Please write with details to Ref RMV/L, c/o Austin Knight Limited, Tricorn House, 51-53 Hagley Road, Edgbaston, Birmingham B16 8TP. All applications will be forwarded to the client concerned.

REAL-TIME SOFTWARE SPECIALIST

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EDUCATION COMMITTEE
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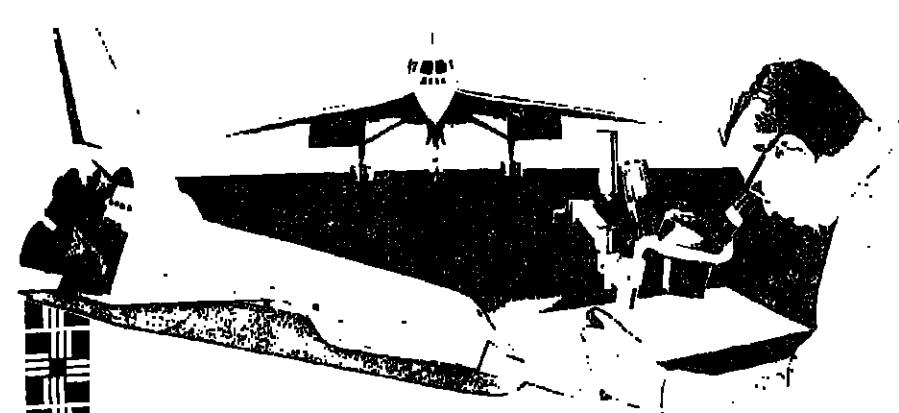
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SCALE 4

Applications are invited from graduates, with experience of producing software, for the post of Teacher responsible for the development of computer assisted learning packages at the Mid Glamorgan Schools Computer Centre.

Salary: £7,806-£10,572 per annum.
Application forms (to be returned by 30 June 1982) further particulars, obtainable on receipt of a stamped addressed, foolscap envelope, from: The Director of Education, Mid Glamorgan County Council, Gwynedd, Cardiff CF1 3NF.

Canvassing will disqualify.



INTERNATIONAL TECHNICAL MARKETING ANALYST

One of the most challenging roles in any company is the exploration of new marketplaces. When this is combined with international travel and a high technology industry, the result is a very attractive new position.

MODULAR COMPUTER SERVICES designs, markets and manufactures sophisticated computer systems primarily for viewdata, communications and process control applications.

We are now established in Europe and have begun our expansion into new areas such as the Middle East and Far East.

To help us achieve this expansion we are looking for an individual to provide our International Sales Manager with comprehensive technical support. This will be a demanding role which will involve the successful candidate in giving presentations, running benchmarks, configuring systems and providing technical solutions to customer problems.

A high degree of technical skill is called for and experience in a pre-sales environment is essential.

Company benefits for this position are excellent and include a competitive salary, a company car, a non-contributory pension scheme, free life assurance and free B.U.P.A.

For further details ring SUE HAMPSON on Wokingham 788711, or write to MODCOMP, Motly Millars Lane, Wokingham, Berks.

MODCOMP

Experienced data processing manager PARIS

A Fortune 800 Construction Company has an excellent opportunity for an experienced, highly motivated, Data Processing Manager in its newly-acquired affiliate in Paris.

The candidate selected will supervise a team of analyst-programmers and will also be responsible for the computer operations at their three processing locations. Candidates should have the following qualifications:

- five years experience with progressive responsibilities in EDP management including systems analysis, knowledge of commercial and scientific applications and languages, and computer operations,
- fluency in French and English.

The compensation package will be in relation with experience of the candidate.

Applications including full details of experience should be sent under reference 2.667 C to PUBLIPANEL, 20 rue Richer 75441 Paris Cedex 08, France.

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SYSTEMS & PROGRAMMING

MANAGER - TECHNICAL SUPPORT

City-based Financial Services Company c. £18000
Our client, a major services organisation involved in the financial market, requires a talented DP professional to manage all technical support functions within their dynamic and expanding installation. Hardware is based on twin IBM 4341 mainframes (another due late 1982), running under DOS/VS, VM and CICS/VS, supporting an international telecommunications network consisting of two IBM Series 1 machines. The successful applicant will be responsible for the support, maintenance and development of all systems software within this bureau services environment including the management of a 4-strong technical programming group. We would like to hear from candidates who possess a thorough knowledge of DOS/VS, have at least 3 years' systems programming experience plus previous involvement (or potential) in the supervision of technical personnel. Additionally, an outgoing personality is essential as is the ability to communicate complex ideas and techniques to personnel at all levels. Ref: M1333

SYSTEMS ANALYST

To £12000
A major financial institution is seeking to recruit a systems analyst to join a team of professionals who are responsible for the quality control of the entire DP department. Candidates can expect to gain valuable experience within a progressive IBM environment. If you have a minimum of 3 years' analysis experience with a programming background, please now for further details. Ref: T1336

SENIOR PROGRAMMERS

c. £10500
Our clients are a leading international bank based in the City whose commitment to DP expansion has created vacancies for 3 senior programmers. Candidates should have a strong IBM OS background and be self-motivated individuals who wish to make positive career progress. Preference will be given to applicants with CICS and database experience. Ref: T1334

ANALYST/PROGRAMMER

c. £19000
A vacancy exists within a rapidly expanding services company for an analyst/programmer to develop commercial systems for a variety of companies. If you have 3-4 years' COBOL experience and wish to further your career in a challenging environment, please contact us immediately for further details. Ref: T1335

OPERATIONS

IBM DOS OPERATIONS

LONDON £7200-£10000
This manufacturing concern is seeking operations staff at both supervisory and operator levels. An opportunity exists at SHIFT LEADER level, for which applicants should possess a minimum of 6 years' experience in a VM/DOS VSE and CICS environment; previous shift leading experience is essential. There is also a vacancy for an OPERATOR for which approximately 18 months' similar experience is required. Candidates should be self-motivated with a professional approach and the ability to work under pressure. Ref: W1322

IBM OS OP/SENIOR OPERATOR

CITY £7,800-£9,100
This is an outstanding opportunity for a self-motivated DP professional to join an established but progressive installation. You should possess a minimum 18 months OS VSI experience and be fully conversant with JCL and Utilities. The hardware comprises an IBM mainframe and a rapidly expanding Communications Network utilising POP equipment. The successful applicant can expect total job satisfaction and an interesting long term career path. Salary will be commensurate with experience and a superior range of benefits is offered inc. sub. MORTGAGE and annual BONUS. Ref: J1322

IBM DOS SHIFT LEADER

C. LONDON c. £7800 + S/A
We have an excellent opportunity for a mature, highly-motivated individual who is seeking a career move into junior management. The successful candidate, who should be fully conversant with DOS VSE, JCL and Utilities in a TP environment, will progress to a DAYS ONLY role within 6 months. Reporting directly to the Operations Manager, you will be responsible for the daily running of the machine room, supervision and training of a small, busy team and first-line technical support. Current hardware comprises an IBM 4300 mainframe, running on a 2-shift system. Ref: P1309

IBM OS OPERATOR

C. LONDON £7500
Major financial organisation based in the City requires an operator with a minimum 18 months' VM/VS1 experience; MVS would be an advantage. The successful applicant, who should be both mature and ambitious, will be required to operate a powerful dual-IBM configuration. A first-class benefits package is offered which includes sub. MORTGAGE, annual BONUS, personal loans and n/c pension. Ref: W1323

UNIVAC SHIFT LEADER

C. LONDON c. £7600
We have been asked to assist in the recruitment of a Shift Leader with a minimum of 2 years' experience gained in a UNIVAC 1100 environment (preferably 1100/80). You should ideally possess a knowledge of Communications and Utilities. The successful applicant, who will be required to supervise a small team on a staggered DAY-shift basis, can expect interesting long-term prospects as a result of future development plans. Usual large-company benefits apply. Ref: P1337

ICL 2904/ME29 OPERATORS

W. LONDON/MIDD. c. £6250
We have two clients who are currently seeking operators with a minimum of 18 months' 2904 or ME29 experience to work on extended DAY-shifts. Please telephone for full details. Ref: P1301

IBM DOS/OS OPERATIONS

LONDON AND HOME COUNTIES To £8500
We have a number of vacancies available for IBM operators with a minimum of 12 months' experience, some of which are listed below:

	SEN. OP.	VM/VS1	3-shift	£8500
a) C. LONDON	VM/VS1	VM/VS1	2 and 3-shift	£7000
b) ESSEX	VM/VS1	VM/VS1	2 and 3-shift	£6000+
c) E. LONDON	OP. x 2	VM/VS1	2 and 3-shift	£7000
d) BERKSHIRE	OP. x 2	DOS VSE	2-shift	£7800+
e) MIDDLESEX	OP./SEN. OP.	DOS VSE	2-shift	£6600
f) C. LONDON	SEN. OP.	DOS VSE	2-shift	£6600
g) SURREY	OPS./SEN. OPS.	VM/VS1/MVS	3-shift	to £8600
h) ESSEX	SEN. OP.	MVS/JES 2	2-shift	£7000
i) BEDS.	OPS./SEN. OPS.	MVS/JES 2	3-4-shift	to £8500
j) BERKSHIRE	SHIFT LDR./SEN. OP.	MVS/JES 2	3-shift	to £8000

For full details of the above requirements, please telephone quoting the reference number.

VARIOUS

BURROUGHS OPERATOR Medium Systems 2-shift
IBM SYSTEMS 34 OP. 8 months+ 2-shift
HONEYWELL 34 OP. Level 54 2-shift
C. LONDON S.W. LONDON
S.W. LONDON Ref: P/GEN

IBM DATA CONTROL

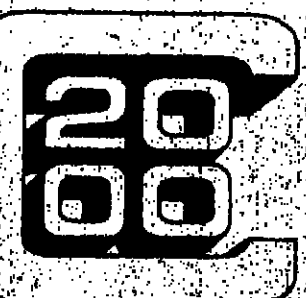
£3000-£7800
12 months+ DOS or OS experience
All areas: Ref: W1314

URGENT!

IMS - MTO

Contract or Perm
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Middle East £16,000-£22,000 tax free

Get in on the ground floor of a very large project by a European company of world standing.

You will be part of a small team designing and implementing data base oriented systems using mainly COBOL and some FORTRAN. You must have a relevant qualification or equivalent experience (at least 2-5 years), preferably on HP-3000 computers using Image and V/3000. The salary will depend on your ability, in addition to which you will be provided with free accommodation in this more liberal part of the region. Generous leave and good general facilities. One year renewable contract.

Please telephone (01-499 0342), or write, in confidence, giving full personal and career details, quoting ref 4147/DL/CW to:

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International
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West Germany IBM Systems Programmers

European TP Network and Database Systems

£12,000-£18,000.

This is an opportunity to move into a varied and demanding technical support/software development role. An opportunity also to improve your quality of life in idyllic surroundings.

Braun AG is a highly successful European name in the electrical/personal care and household products market. Certainly in the UK you will be aware of our shaving and haircare range.

We are set in the charming ancient town of Kronberg, enjoying the dual benefits of being surrounded by picturesque rolling hills and having easy access to the cities of Frankfurt and Wiesbaden.

Current systems are based on our 4341 and 370/148 mainframes with a substantial CICS network, and are organised around database techniques. Our technical support team are obviously heavily involved in the development of the operating system and surrounding real time and database software. They are a front-line troubleshooting unit, essential in a time when more advanced techniques are being used in developing new and more comprehensive systems.

We require two professionals, each with a strong IBM Assembler background.

Preferably this will include two of the following:

CICS: DL/1; DBOMP; DOS/VSE.

First we'll teach you the German language. Then we'll add to that CICS or DL/1 training, whichever is necessary.

We'll provide: Relocation expenses; an English speaking, forward thinking and professional working environment; technical involvement in-depth and breadth; a new life style.

In the first instance contact our Advising Consultant in the UK - David J. Scarlett on 01-935 0671 or (evenings and weekends) 01-540 2500.

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01-305 0671/488 0461

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Queensway, Birmingham B3 3JY
021-236 3781

NORTH
Blackfriars House, The Parsonage,
Manchester M3 2JA
061-933 0421

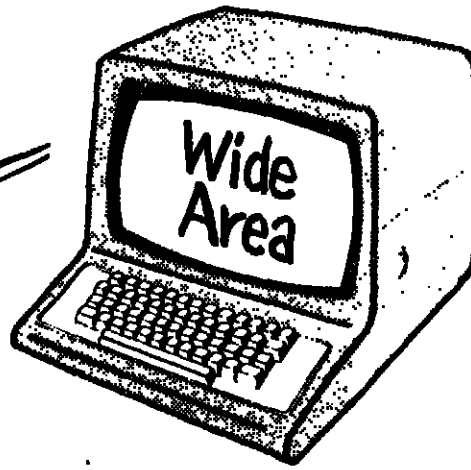
BELGIUM
Avenue Louise 927,
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HOLLAND
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A New Development Team



Networks



Hertfordshire

Principal Consultant/Designer £ Negotiable
Senior Team Leaders/Consultants to £15,000
Senior Programmers to £12,000
Programmers to £9,000

Our client is embarking on the development of one of the largest multiple node networks of computer communications systems in Europe. Being a large, successful manufacturing company they have the facilities and credibility to handle a project of this size. Early study and planning phases are initiated but the main design and implementation teams will be newly recruited.

Principal Consultant/Designer The candidate for this position will probably be a national figure. You will have considerable experience and knowledge of communications and networking at a state-of-the-art level and be capable of representing the company at international meetings.

Senior Team Leaders/Consultants will have several years systems software implementation experience, typically at operating systems level on minis and micros. They are expected to have a good appreciation of hardware architecture. Experience of communications systems would be advantageous.

Senior Programmers & Programmers will have two or more years experience of systems software implementation or technical applications development on minis or micros. Essentially they will be bright people who will be attracted by the scope and challenge offered by a project of this magnitude.

Usual successful company benefits including relocation assistance where appropriate.

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings Gt. Missenden (02406) 4705 or daytime as below.

HR

H. R. Associates Limited

Executive Computing and Technical Personnel Consultants
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HR

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TECHNICIAN, SENIOR OR SUPERVISOR** To £11,000
According to level of entry - £6,000-£11,000 p.a.

If you have experience on networking, minis or IBM mainframes and peripherals, please hear about the varied roles at our professional Computer Centre with its current IBM Mainframes and more particularly with the many new developments in a five year programme covering all of the U.K.

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Software Engineers and Senior Software Engineers are needed for research in the application of the latest computing and communication technologies in the office environment involving the higher level network and terminal protocols and all aspects of human interaction. Candidates must be educated to degree level, preferably Computer Science or related area, and able to demonstrate a sound knowledge of a number of the following subjects:

Structural High-level Languages
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Information Retrieval
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As well as an excellent record of technical achievement, candidates must possess market awareness, understanding of the user requirement and an ability to communicate effectively. Applicants for the senior posts would be expected to have experience in analysis, specifications, design or project management.

Apply to: G. D. Prichard, Administration Manager, GEC Hirst Research Centre, East Lane, Wembley, Middlesex HA9 7PP. Tel. No. 01-904 1282 Ext. 390, quoting ref. P/115.

S&C

Commercial Computer Systems

FIELD SALES MANAGER

£27,000 + car

Our client, a leading manufacturer of interactive commercial/business computer systems wishes to appoint a Field Sales Manager for their thriving North West region (Manchester).

Your prime responsibility will be to lead and develop a team of experienced sales executives marketing an excellent range of systems with an installed value of £20K to £300K, covering a broad spectrum of commercial applications.

To qualify you will be 26yrs to 40yrs with at least three years proven experience in a similar position with a recognised computer organisation.

Alternatively if you are selling hardware/systems, possibly as a large/major accounts manager or a senior sales executive and would like an opportunity to move into management we may be prepared to create a manager designate position.

The importance of this position is reflected in the remuneration package of around £27K, split according to ability, experience and background and will certainly include an attractive five figure basic salary. A car and first class benefits are also included.

For further information in absolute confidence telephone: **Harry Clark on 031-228 6419** (reverse the charges) or write enclosing career details. Please quote ref: 136/74.

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MANAGING DIRECTOR

BDS, a leading supplier of computer peripherals specialising in printer systems, have a vacancy for a Managing Director of Corporate Operations to accelerate growth within the U.K. and Western Europe.

The candidate must be able to demonstrate a successful marketing background with total responsibility for full financial control.

Excellent salary and usual fringe benefits will apply.

Please write with c.v. to:

**Personnel Manager
BDS COMPUTER (UK) LTD.
125 Highgrove Street
Reading, RG1 5EN**

to arrive by June 24

SMR

Sales & Marketing Recruiters Ltd

SALES EXECUTIVE

TIME TO CONSULT THE SPECIALIST?

When you are dealing with the major factors in your life you can only afford the best, and few things are more important than the development of your career. Certainly, this is how the major computer manufacturers feel about their personnel selection and why such companies as CONTROL DATA, COMPUTER TECHNOLOGY, DATA GENERAL, HONEYWELL, PERKIN ELMER, REDDEFINITION, SPECTRA UNIVAC and many others continually use our organisation for the recruitment of experienced Sales people.

We fully understand the needs of such companies as well as knowing about the many job opportunities that never appear in the press. Those well respected names depend on our professional skills and confidentiality. Can you afford less?

Contact: Alan Williams
Peter Hubble or Alastair Scott - ANY TIME

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SALES BIT

Quality of Management - 14

Training will fail without discipline

SALES training is not an

easy process. Salespeople can be demanding students, expenditure on sales training is difficult to justify in absolute financial terms and even when the best possible training programme has been established there is always a significant chance of failure.

Failure in sales training is very much a relative term. In some circumstances it could apply to an entire class, in others, to one or more individuals. The blame can often be directed at the content of the course, on some occasions the calibre of the instructor or even an inappropriate venue. What seldom seems to come in for criticism is the discipline within which tuition is carried out.

Many training courses fail to achieve their full potential because there is insufficient discipline to ensure that absolute priority is given to the educational process and also to guarantee the fitness of the individual to make a maximum contribution to the proceedings.

There is a time-honoured business adage which suggests that business always comes first. This sentiment is often exploited by salespeople on training courses who work on the assumption that training is not business and use every opportunity to avoid class-work, and the sometimes rewarding conversations of refreshment breaks, by rushing off to make urgent telephone calls or attend impromptu meetings.

This should not be allowed under any circumstances. Training is such an infrequent and expensive process that once it has been put into effect it must have precedence over all operational activity. The waste of investment on such individuals and the related disruption of other students must be avoided.

Any well organised salesperson should be able to make arrangements with his other clients and prospects to be absent for a week or so.

Most interruptions at sales courses are due to salespeople informing both clients and colleagues at large that they are unfortunately obliged to attend a training course but can always be contacted by telephone and will call back during a convenient refreshment break.

That brings to mind the question of venue: Try to avoid mounting any kind of significant training course at your own premises. In an hotel it is relatively easy to issue an instruction that there should be no interruptions and that any messages, if you allow them at all, should be held until an appropriate time. In the office all manner of people could be lurking around to wily salesmen as soon as they emerge from the classroom. Many courses I have attended have ended in evenings which decline into an alcoholic stupor. This may do a lot for relaxation and social relationships, but it does very little for learning and concentration in the classroom.

There is no more depressing sight for an instructor than a gang of bleary-eyed zombies who are concentrating more on the anguish of withdrawal symptoms than the lessons of the day. It is not particularly motivating for the more abstemious in the class, either.

I have also found an obsession on the part of instructors to work participants "until they drop". There is always the inevitable prospect that demands several 12-hour days and perhaps the necessity to work right through until the early hours of the morning to get the job completed.

I have never been sure what the intention actually is. Perhaps a test of character, the ability to survive under stress, the simulation of real business environment? More likely it is an indication that too much is being crammed into the course or the instructor has insufficient perception of how much people actually learn when they are worn out.

Subject material should, in my opinion, relate to the duration of the normal working day and the average ability of the non-student mind to accept and absorb information. I know of one highly enlightened instructor who deliberately plans his courses to cater for periods of formal exercise and relaxation. I am told by one of his students that he has never learned so much on a course or enjoyed himself so much as with this particular trainer.

Just as in management, you don't get the best out of people by driving them into the ground. And the stereotype is not necessarily the best strategy.

There are several areas in which regular and continual training is absolutely essential:

- Prospecting and qualification;
- Territory management and planning;
- Handling objections;
- Closing;
- Product knowledge;
- Applications knowledge;
- Competitive products;
- Target industries;
- Financial understanding.

It is extremely difficult for salespeople to succeed without complete fluency in these areas.

Alan Williams

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